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THE NAVAL STORES INDUSTRY IN THE ANTE-BELLUM SOUTH, 1789-1861

by

Percival Perry

Date: May 1, 1947

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A thesis

submitted in partial fulfillment of
the requirements for the degree
of Doctor of Philosophy in
the Graduate School of
Arts and Sciences
of
Duke University

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PREFACE

The production of naval stores, an industry based on the exploitation of the piney woods for their resinous juices, was one of the earliest industries to be developed in the South, and among the economic activities of that area it was surpassed in importance only by agriculture and lumbering. Wooden sailing vessels used large quantities of tar and pitch; hence the term "naval stores." In the eighteenth century "naval stores" had a much broader meaning than in later times, including not only tar, pitch and turpentine, but also masts, spars, hemp and other articles. For the period under consideration, 1789-1861, the term came to refer primarily to the resinous juices of the pine, turpentine and tar, and their derivatives from distillation, spirits of turpentine, rosin and pitch.

If there should seem to be too frequent reference to the industry in North Carolina alone, it arises from the fact that during this period North Carolina was the center of the industry, producing far more than all the other states combined. As shown by C. C. Crittenden in his Commerce of North Carolina, 1763-1789, in the period just prior to the Revolution North Carolina

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PREFACE

produced seven-tenths of all the tar exported from the British continental colonies, one-fifth of all the pitch, and more than one-half of all the turpentine. The annual value of these three commodities shipped from her ports amounted to almost 42,000 pounds--three-fifths of the value of all naval stores shipped from the continental colonies. In the year 1791-1792, although her exports had fallen considerably as a result of the Revolution, she still produced more than any other single state. By 1860 naval stores constituted the third most important export crop of the South; the total value of the products amounted to nearly $7,500,000, over $5,300,000 of which was produced in North Carolina.

The extent to which the naval stores industry had become identified with North Carolina is to be seen in the fact that one of her rivers situated in the heart of the naval stores region acquired the name Tar, and the town located at the head of its navigation became Tarboro'; while the people throughout the period were generally referred to, somewhat derisively, as "tar, pitch and turpentine folk," and the state itself acquired the nickname "Tar Heel."

Generally speaking, except for a few central counties bordering on the Virginia line, North Carolina lay outside of the tobacco belt economy of Virginia and Maryland. Similarly, throughout most of the period it was considered outside the cotton region to the south. Cotton culture was attempted in the early years of the development of the cotton economy, but

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was abandoned as unprofitable until high prices, commercial fertilizers, and the exhaustion of the pine forests brought it back into favor in the late eighteen fifties.

This study was begun in 1939, after reading a pamphlet guide to the manuscript sources in the Duke University Library which indicated that some of the more important collections of papers were those of men of the Old South who had been engaged in the production and sale of turpentine. Studies of other staple products of the Old South had been made, such as The Cotton Kingdom, by the late William E. Dodd, The Tobacco Kingdom, by Joseph C. Robert, as well as studies of sugar and rice plantations; but investigation revealed that no study had been made of the production of naval stores.

Statistics on the production of naval stores in the South during the ante-bellum period are meagre. Writing about 1790, Tench Coxe in his View of the United States of America, stated "The preparation of tar, pitch, turpentine, spirits of turpentine, and rosin, in North Carolina and its vicinity, may be deemed a manufacture as justly as the making of linseed oil, pot ash, or ordinary tanning. A very small quantity indeed, of these articles, will be made in the states north of Virginia because nature forbids; but they will for obvious reasons, increase in the South." Despite these words of Coxe, naval stores were practically ignored in federal censuses except in 1840 and 1860.

Seldom classed under manufactures, since in the early days

most of it was shipped in its crude form, omitted from the statistics on agriculture, since it was not properly a product of the soil produced through the usual methods of husbandry as cotton, tobacco or corn, and produced mostly in one state having but a single port of any size, little information in readily accessible form concerning this phase of the economy of the Old South was collected. Consequently, the staple product of North Carolina has received scant attention in the secondary accounts of Southern economy in the days before the Civil War.

Although considerable attention is given to the production of naval stores in the Colonial period by Lewis C. Gray in his History of Agriculture in the Southern United States to 1860, this work has only a few incidental references to the industry in the middle period, when naval stores constituted one of the staple products of North Carolina. Likewise, Ulrich B. Phillips accords it no place in his Life and Labor in the Old South, nor does his American Negro Slavery contain any references to the character or condition of the slaves employed in the production of turpentine.

This, then, is a study of a staple product and of an area that have been insufficiently studied. Chief attention has been given to North Carolina where this industry reached its greatest development, but its spread into other parts of the South in the last decade prior to the Civil War has been traced. Much of the evidence concerning the industry has been drawn from the

papers of the larger producers engaged in the trade. Regrettably, too little is known of the smaller man. Often unable to read or write, they lived, worked, and passed on without leaving more than the exhausted faces of the pines as a temporary monument to mark the course of their path or the extent of their activities.

The naval stores industry was a migratory industry, because the raw material was exhausted in from ten to twelve years of cultivation and could not be replaced in a lifetime. When the destruction of the forests had been completed, nature replaced the primeval longleaf pine with an inferior variety of rapid growth but of low value. Over the region whose economy was once based on the golden flow of resin from the pines, the culture of bright-leaf tobacco now holds sway.

I wish to acknowledge my indebtedness to the members of the staffs of the libraries of Duke University, the University of North Carolina at Chapel Hill, of North Carolina State College, the North Carolina Historical Commission, and of the State of North Carolina in Raleigh; also of the public libraries of Newbern, Fayetteville, Wilmington and Charleston; of the libraries of the University of South Carolina, of the South Carolina Historical Commission in Columbia, and of the Charleston Library Society in Charleston.

Among others, I wish to thank Mr. S. L. Grist of Washington, North Carolina, and Mrs. Helen Grist Bragaw of Southport, North Carolina, for supplying information concerning the Grist

family, whose papers in the Manuscript Division of the Duke University Library have enriched my knowledge of the naval stores industry. Mrs. Emma MacMillan, Librarian of the Wilmington Public Library, by her many suggestions and kindnesses, contributed to the profitableness and pleasure of my research in that institution.

I also wish to express thanks to Dr. Nannie M. Tilley of the Duke University Library Manuscript Division for having given many suggestions as to sources. Several passages in the text are from references to naval stores which she discovered in her own researches and kindly passed on to me.

I am especially indebted to Dr. Charles S. Sydnor who has guided the progress of the study throughout. His frankness of criticism and charitableness of nature have been both rewarding and inspiring.

And lastly, I am indebted to my wife who has assisted in all phases of the work--in research, in writing, typing, proofreading, and in preparing the maps and illustrations. She has made many valuable suggestions, and has "divided the drudgery while doubling the fun."

P. P.

Duke University
April 8, 1947

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THE NAVAL STORES INDUSTRY IN THE ANTE-BELLUM SOUTH, 1789-1861

CHAPTER I

THE REGION, THE RAW MATERIAL, AND THE PEOPLE

The raw material of the naval stores industry was the pine tree. From the living tree came the crude gum known as turpentine with its derivatives, spirits of turpentine and rosin; while from the heart of the dead tree, called "lightwood," was extracted tar and its derivative, pitch. In its original expanse the southern pine forest, occupying the wide coastal plain from Virginia to Texas, covered some one hundred and thirty million acres.[1] While at least ten species of pines were to be found in that area, only four were of any commercial importance--shortleaf, longleaf, loblolly, and slash pine.[2]

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[1] Rupert B. Vance, Human Geography of the South, a Study in Regional Resources and Human Adequacy (Chapel Hill, N. C., 1932), 111-112. Cited hereafter as Vance, Human Geography of the South. See map on page 18

[2] The accepted botanical names for the trees are as follows: Shortleaf (Pinus echinata Miller), loblolly (Pinus tooda Linnaeus), slash (Pinus caribaea Morelet), and longleaf (Pinus Palustris Miller). Longleaf has been known by various other common names in different localities: "fat" pine in the South generally; "long leaved" and "long straw" pine in the Atlantic States; "turpentine" and "rosemary" pine in North Carolina;

Shortleaf and loblolly grew inland through the Piedmont and up to the hills, while longleaf and slash pine hugged the low coastal plain. It was the latter two, and more particularly the longleaf, which served as the basis for the naval stores industry.[3]

When a pine tree is wounded the principal liquid that exudes is oleoresin, commonly called turpentine or gum. The

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"brown" pine in Tennessee; and "orchard" pine in Texas. In addition it has various common names in the lumber trade. W. G. Wahlenberg, Longleaf Pine (Washington, D. C., 1946), I, 268. This is an excellent recent and scientific study of the longleaf pine, covering regeneration, growth and uses. Wahlenberg is a forester by profession, and is employed by the Southern Forest Experiment Station of the Forest Service, United States Department of Agriculture.

[3] Vance, Human Geography of the South, 111-112. Frederick Law Olmsted, A Journey in the Seaboard Slave States, with Remarks on Their Economy (New York, 1856), 338. Cited hereafter as Olmsted, Journey in the Slave States. In Virginia in Colonial times naval stores were derived largely from the loblolly pine. In North Carolina they came chiefly from the longleaf. W. W. Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 73. Writing in 1861, the noted agriculturist, Edmund Ruffin of Virginia, in speaking of the longleaf pine said: "This tree is especially resinous, and is the only pine tapped for turpentine. Scarcely a good tree in North Carolina has escaped this operation, unless in some few tracts where that business has not yet been begun." Agricultural Geological and Descriptive Sketches of Lower North Carolina, and the Similar Adjacent Lands (Raleigh, 1861), 255. Cited hereafter as Ruffin, Sketches of North Carolina. Wahlenberg states that "While the virgin timber lasted, nearly all United States gum naval stores came from longleaf pine. At present only about 40 percent comes from longleaf, the rest from slash pine." Wahlenberg, Longleaf Pine, 20. This is due to the fact that many of the original longleaf stands along the coast were succeeded by slash pine stands, and also to the fact that it has now been determined that slash pine affords a higher yield of gum turpentine than does longleaf. Ibid., 45, 192.

source of the production of oleoresin is still much debated even by experienced foresters,[4] but it seems to be formed by the trees as a by-product during the transformation of their food materials into woody tissue.[5] This by-product, which is to be distinguished from the ordinary sap of the tree, is stored in a system of ducts beneath the bark, and cutting the bark serves to increase the number of ducts and stimulates the flow of resin. The formation of resin accompanies the rising of the sap, beginning about March and continuing until October or November.[6] The resin passages are inter-cellular spaces formed, presumably, by the drawing away from each other of the thin walls of neighboring clusters of parenchyma cells exuding resin. These resin passages, or ducts, are outstanding characteristics of all pine wood, but reach a notable development in slash and longleaf pines. In a magnified cross section many are visible, and a square inch of sapwood surface of a longleaf pine contains 300 to 400. The ducts extend both vertically and horizontally, forming two interconnecting systems throughout the wood tissue, the severance of either of which permits the gum to be drained

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[4] Ibid., 190.

[5] A. W. Schorger and H. S. Betts, "The Naval Stores Industry," United States Department of Agriculture, Bulletin, No. 289 (1915), 10.

[6] Ibid., 10-11.

from both.[7]

The very act of wounding the tree serves to increase the vertical ducts as much as tenfold, particularly in the new wood laid down two or three feet above the point where chipping begins each year. It is essential to keep the wound fresh by repeated chipping, otherwise the flow of the resin will cease, and the severed parenchyma cells will become dry and clogged with hardened gum and die.[8] Oleoresin is produced in two forms, "dip" and "scrape." Dip is the liquid portion which is caught in a box cut into the base of the tree; scrape is that portion of the gum which hardens on the face of the tree and must be scraped off when collected at the end of the dipping season. Both are distilled to produce spirits of turpentine and rosin, scrape yielding only about half the amount of spirits of turpentine as dip, but more rosin, although of a lower quality.[9]

After a longleaf pine had been cultivated for six to eight years or longer, and the face had reached 15 feet or more, it could be back-boxed, if of sufficient size. When this face had been worked for a similar period of time, the tree was abandoned, unless it was to be used for making tar. In the latter case the face of the tree was cut out, resulting in the complete destruction of the tree.

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[7] Wahlenberg, Longleaf Pine, 190.

[8] Ibid.

[9] Ibid., 190-191.

Tar made from abandoned turpentine faces was known as green tar, because it had been made from a living tree, i.e., green wood. The more common raw material for making tar, however, was the carcasses of dead longleaf pines previously destroyed by insects, fire, wind, or in some other manner. The woods were strewn with branches, fragments, and the heart portion of the body, the relics of destroyed trees, which due to the resinous matter permeating their fibres would lie for years without decaying. These particles could be easily gathered, made into a kiln, covered with earth and subjected to a slow fire which forced out the resinous matter, in the form of tar.[10]

The virgin forests of slash pine were confined to poorly drained flat lands and the borders of swamps, and did not grow on the soils of dry, deep sandy ridges, the typical "pine barren hills." Longleaf pine, on the other hand, was generally confined to dry, sandy soils where there was a subsoil of clay. By reason of its long, stout tap root it excelled all other trees in its ability to grow in the relatively infertile sands of the "pine barrens." Indeed, the solitary growth of longleaf on the soil was fairly good indication of infertility.[11] A

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[10] John Macleod, "Tar and Turpentine Business in North Carolina," Journal of Agriculture, II (July, 1947), 16-17. Olmsted, Journey in the Slave States, 347.

[11] Wahlenberg, Longleaf Pine, 49-56. Ruffin, Sketches of North Carolina, 254. F. A. Michaux, North American Sylva, or a Description of the Forest Trees of the United States, Canada and Nova Scotia (Philadelphia, 1819), III, 133-139. Cited hereafter as Michaux, North American Sylva.

contemporary who wrote a sketch of the naval stores industry in North Carolina in 1846 spoke of the graceful and magnificent appearance of the longleaf pine, but added: "and yet this peerless order of Nature's architecture is reared upon a sterile, arid, and silicious soil, that in its original condition will scarcely produce anything else."[12] In the account of his tour through the Southern states in 1852, Olmsted stated that:

> In the region in which the true turpentine trees grow indeed there is no soil suitable for growing cotton; and it is only in the swampy parts or on the borders of streams flowing through it, that there is any attempt at agriculture. The farmer in the forest, makes nothing for sale but turpentine and, when he cultivates the land, his only crop is maize.... 13

This statement as to the unsuitability of the land for growing cotton was made by way of explaining, in part, why the turpentine industry was more extensive in North Carolina than in the other Southern states.

Edmund Ruffin, in recounting his journey to Wilmington in 1840 over the newly completed Wilmington and Weldon Railroad, described the land around Wilmington as of almost pure white sand, covered with scrub oaks where the original pine forest had been removed, and added:

> In a mile or two from Wilmington, along the ordinary carriage

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[12] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 13.

[13] Olmsted, Journey in the Slave States, 338.

road, the excessive sandiness of the soil changes to rather less of that character, and to such as is general through the pine lands for many miles. The general growth is long leaf pine, thinly set, with very little undergrowth of trees or shrubs. The surface of the earth is set with tufts of what is here called "wire grass,"....

The surface of the land, like that of the last 50 or 60 miles seen along the rail-road, is almost level. The slight depressions are all of a swampy character,.... But whether dry or wet, all these pine lands,...are very poor, and without being furnished with the calcareous ingredient which they want, are, and will continue, worthless for tillage. It is from such pine woods, which cover so large a part of eastern Carolina, that the great supplies of turpentine and tar are obtained, the making of which is almost the sole business of the residents of the pine lands.

. . . . . .

Except rice, made on the embanked marches of the Cape Fear river, there is but little if any surplus grain made in the counties around Wilmington. The corn required for the support of that town is partly brought from abroad, and none is exported. There is no where any wheat sown,...and the oats are all consumed on the farms where raised. There is but little cotton made; and scarcely anything for market made from the fine grazing afforded by the savannas and forest lands....

There is not much land cleared or cultivated except on the borders of the rivers, and of that I saw but little. In the pine lands there are but a few small patches cleared, and those very poor in product; the almost sole business of the residents being to make turpentine and tar. Even where better lands and better farming are found, the same crop, corn, is generally cultivated without the intervention of any other, either every year, or every second year, as long as the land can bear it. 14

Some fifteen years after Ruffin drew his brief sketch of the pine region of North Carolina and its inhabitants, with their preoccupation with "tar burning" and "turpentine getting,"

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14 Edmund Ruffin, "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 246, 250.

. . . . . .

and their feeble attempts at agriculture, a similar picture was drawn by another traveller. Frederick Law Olmsted in his tour of the seaboard slave states in 1852 gave a description of the methods of making turpentine, and commented upon the people inhabiting the turpentine forest. The majority were in the class usually denominated "poor whites," whom Olmsted described as "entirely uneducated, poverty-stricken vagabonds...without habitual, definite occupation or reliable means of livelihood."[15] They possessed only their bodies, a rifle, some dogs, and a log cabin so rudely constructed as to be only a shelter from rain. They were not for hire unless in desperation, and then only for sufficient cash to satisfy the immediate need. The men spent their time hunting, for they raised no food except a small patch of maize and coleworts, or "collards," and a few wild swine which found their subsistence in the forest. The total value of their property often amounted to less than twenty dollars.

By way of comparison Olmsted stated:

> The majority of what I have termed turpentine-farmers--meaning the small proprietors of the longleafed pine forest land, are people but a grade superior, in character or condition, to these vagabonds. They have habitations more like houses--log-cabins, commonly, sometimes chinked, oftener not--without window glass, but with a few pieces of substantial old-fashioned heir-loom furniture; a vegetable garden, in which, however, you will find no vegetable but what they call "collards" (colewort) for "greens"; fewer dogs, more swine, and larger

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15 Olmsted, Journey in the Slave States, 348.

clearings for maize, but no better crops than the poorer class. Their property is, nevertheless, often of considerable money value, consisting mainly of negroes, who associating intimately with their master, are of superior intelligence to the slaves of the wealthier classes.

The larger proprietors, who are also often cotton planters, cultivating the richer low lands, are, sometimes, gentlemen of good estate--intelligent, cultivated, and hospitable. The number of these, however, is extremely small. 16

The poor agriculture and dismal aspect which the pine barren regions of North Carolina presented were amply attested to in writings of the time. A New Hanover county farmer writing to the editor of The Cultivator (Albany, New York), in 1847 stated that the

Agricultural capabilities of this part of North Carolina, are by no means great or extensive; other avocations absorb the attention of the mass of our population. Our lands consist principally of extensive forests of pine barrens. Turpentine, lumber, and tar, the produce of those forests, afford means of subsistence to the majority of our people. There are some good lands on our rivers, and a strip on our sea coast, beginning 10 miles from Wilmington and extending northwardly about 50 miles, with a breadth of from one to two miles. The public road, which passes close to this region, presents the most uninviting aspect in the universe--the deserts of Africa not more so--and a traveller would little suspect that he was in the neighborhood of extensive and not unfertile plantations. 17

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[16] Ibid., 349-350.

[17] The Cultivator, new series, IV (April, 1847), 127. Another article written by a traveller through the South in 1846 described North Carolina, agriculturally speaking, as having "some spell resting upon it." Journal of Agriculture, I (May, 1846), 544-545. Another description written the same year in regard to the region between Wilmington and Raleigh stated "The soil yields little or nothing for the food of man or beast, except in the immediate neighborhood of rivers. One may travel an entire day in the stage, without meeting more than one or two farm houses." Southern Cultivator, IV (November, 1846), 172.

The Wilmington and Weldon Railroad, chartered in 1836 and running 161 miles northward from Wilmington to Weldon on the Roanoke River, passed through the heart of this pine region. After the charter for the railroad was granted by the legislature the Wilmington Advertiser commented:

> To anyone possessing the slightest knowledge of the Geological structure of our State, a single glance at the map will satisfy him that, a road between Wilmington and Roanoke, will pass over an almost unbroken, level district of country; and if he is familiar with the forests of pitch pine which shade the line of the route, he must be convinced that no country on earth affords the same facilities for constructing a road. 18

To most travellers, the route of this railroad presented a picture of utter desolation. Even in 1855, after the road had been in operation for more than fifteen years and settlements had begun to develop around the depots of the road, an Edgecombe county farmer, where agricultural interest had begun to revive, wrote to the editor of the Wilmington Journal:

> In passing over the Railroad leading, to your enterprising and flourishing town of Wilmington, the eye of the planter is particularly struck with the absence of all Agricultural improvements in its vicinity. From Rocky Mount to Wilmington (with now and then an exception to the rule) the country presents the appearance of a dreary desolate pine barren waste.[19]

The dreary pine barren region, of course, extended to

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18 Wilmington Advertiser, January 8, 1836. Also People's Press and Wilmington Advertiser, December 23, 1835.

19 Wilmington Journal, March 2, 1855.

the Gulf Coast, but its desolate appearance seems to have been more marked in North Carolina. A writer giving a description of East Florida in 1855 stated that while there were small areas of very fertile land, the fertile regions were like so many small islands which dotted the ocean. "By far the larger portion of E. Florida presents the most cheerless waste I ever looked upon--the Wilmington Railroad portion of N. Carolina only excepted."[20]

In a report on the geological survey of South Carolina in 1860, Oscar M. Lieber, state geologist, painted a graphic picture of the "pine barren" region of South Carolina. The sandy soils of the state, said Lieber, were divided into two distinct classes, the low-country sand region, and the sandy soils of the granitic rocks. It was the former which covered the bulk of the lower part of the state and was characterized by the longleaf pine. The productiveness of these soils depended upon their state of comminutions, the fertility increasing with their fineness of pulverulence. In the vast sand region which swept along the southern part of Chesterfield and covered a large portion of Kershaw and adjoining districts, the sand was extremely coarse of grain. In Chesterfield especially, Lieber observed the granules to be the size of a pin head, and added that here

Not a single particle of organic matter is observable, with

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20 Soil of the South, V (January, 1855), 8.

the single exception of charred pine leaves,...which have furnished a grayish tint to the otherwise purely white sand.... The traveller who has passed along the road from Cheraw to the Sugar-loaf Mountain, will know to what region I refer.... The only vegetation almost is found in the long-leafed pine and scrub-oak--and the grey sand hugs the roots of these trees--a picture of arid desolation. Surprise is naturally experienced at the presence of the pine even, although it succeeds on the poorest soil. Yet that tree, capable as it is of subsisting on the most meagre diet, is dwarfed and famished, and the gnarled limbs seem to writhe in suffering contortions. The animal kingdom is as poorly represented as the vegetable. No birds enliven the air; no quadrupeds find sustenance on the ground. Far and wide pine upon pine and sand upon sand stretches away in inhospitable solitude. [21]

This region belonged to the most unproductive of the pine barren belt. There were other portions of it, Lieber added, "where the pine attains its stateliest size, and where its straight trunk and majestic height prove that it has reached its most perfect development."

The exact area occupied by the original longleaf pine forest is unknown, but it has been estimated that it covered from thirty to sixty million acres.[22] It extended almost without interruption from the southeastern part of Virginia through

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[21] Oscar M. Lieber, "Natural Resources, Forest Growth, and Agricultural Products of the State," The Farmer and Planter, II (March, 1860), 68-72. An industrial map of South Carolina which also shows forest growth in the state, accompanies this article. See also an article on the "Pine Land Region" of South Carolina by Whitemarsh B. Seabrook, President of the State Agricultural Society of South Carolina, in the North Carolina Farmer, IV (November, 1848), 121-125.

[22] Wahlenberg, Longleaf Pine, 8.

the lowlands of the Carolinas, Georgia and Florida to Texas, a tract more than six hundred miles long and over one hundred miles broad.[23] In North Carolina, the center of the industry, the tract covered an area of nearly 15,000 square miles, extending westward not much farther than the falls of the rivers and towards the sea no farther than the edge of the broad border of low, flat, moist land.[24] It was the dominant tree of this area, and only along its western limit did it occur associated to any extent with other trees.[25] The original boundaries of the longleaf pine belt were so distinct that the transition zone to other types of forest were often less than a mile wide.[26]

The longleaf pine had a long slender trunk free from branches, a small round head, and bright red-brown thin-scaled bark. In some areas it attained a height of ninety-five feet

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23 Ruffin, Sketches of North Carolina, 254. Some specimens were to be found in the southeastern part of Virginia in Southampton and Nansemond counties, but the forest proper began almost upon entering North Carolina. Gifford Pinchot and W. W. Ashe, "Timber Trees and Forests of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 131-132. W. W. Ashe, "The Forests, Forest Lands and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 18.

24 Ruffin, Sketches of North Carolina, 12. See map on page

25 Pinchot and Ashe, "Timber Trees and Forests of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 131.

26 Wahlenberg, Longleaf Pine, 46.

and a diameter of four feet.[27] In North Carolina the average size of the longleaf pine was sixty to seventy feet high, with a diameter of fifteen to eighteen inches for approximately two-thirds of the height.[28]

Its scant foliage, consisting chiefly of a crown with leaves ten to fifteen inches long, indicated a large heart with small waste from branches when the tree was used for lumber. Because of its fine grain (in which it was excelled among pines only by the shortleaf), its great strength, and its extreme durability due to the resinous matter which permeated its fibres, it was preferred, especially for naval architecture, to

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[27] Pinchot and Ashe, "Timber Trees and Forest of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 131.

[28] Ruffin, Sketches of North Carolina, 254. A contemporary described a tree 150 feet in height, 80 feet of which was clear of knot or limb, and with a diameter at the ground of five feet, gracefully narrowing to two at the other end of the body. Macleod, "The Tar and Turpentine Business in North Carolina," Journal of Agriculture, II (July, 1847), 13. This author estimated the oldest pine of that time to be between 400 and 500 years old. Another veteran longleaf pine has been described as having a diameter of thirty-eight inches, and estimated to be over 400 years old. Wahlenberg, Longleaf Pine, 184. However, Edmund Ruffin, who visited Wilmington in 1840 expressed disappointment over the size and appearance of the longleaf pines in North Carolina. "Some few indeed," he wrote, "present the noble elevation of straight trunk, and great size, which I had looked for; but most generally, the trees are much smaller and far from pleasing to the eye." Near Plymouth in the northeastern part of North Carolina, Ruffin noted the pines to be of the great size and appearance he had at first imagined. "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 250, 254.

all other pines.[29]

The longleaf pine, the only species tapped for turpentine in the ante-bellum period, was of extremely slow growth.[30] Olmsted stated that on one trunk seven inches in diameter he counted eighty-five rings.[31] The longleaf pine did not reproduce very rapidly because it bore seed abundantly only at long and irregular intervals--about once in five years. In the intervening years the yield was small and localized.[32] Birds, rodents and especially the razor-back hog, colloquially known as a "sand hill rooter," were fond of the seed. This "pine mast,"

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[29] Ruffin, Sketches of North Carolina, 255. Wahlenberg, Longleaf Pine, 16. However, the quality of the wood was determined by the kind of soil in which it was grown, for in a richer mould it was less resinous. The more resinous trees, growing in the sandy region near the coast, were referred to as pitch pine. The other variety, more sought for lumber, was usually denominated yellow pine. Michaux, North American Sylva, III, 133-139. Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 19-20. Ruffin stated that it was said that tapping for turpentine decreased the durability of the longleaf for subsequent use as lumber. Sketches of North Carolina, 255. Longleaf timbers were popular in the export market, and in England longleaf prices were twenty-five to thirty per cent above those of other American pines. Michaux, North American Sylva, III, 133-139.

[30] Pinchot and Ashe, "Timber Trees and Forests of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 132. Ruffin, "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 250-251.

[31] Olmsted, Journey in the Slave States, 346-347. Each ring represented one year's growth.

[32] Pinchot and Ashe, "Timber Trees and Forests of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 132. Wahlenberg, Longleaf Pine, 100.

as it was called, formed the great resource for feeding the hogs which were customarily allowed to range at large. The few seeds which did escape to sprout seldom reached more than a few years growth, as the roots and bark were equally succulent to swine and constituted their chief diet during winter and spring after the pine seeds were consumed.[33] Although one of the most fire resistant trees after arriving at considerable height and age, in the early stages longleaf was remarkably susceptible to fire,[34] and in an age when annual burnings were indulged in to provide fresh grass for grazing in the spring, regeneration was almost impossible.[35] Consequently when the original forests had been destroyed, and the ground tilled for a few years and then "turned out," a bastard variety sprang up which grew with rapidity, but was of no value for turpentine and of little for lumber.[36] In the destruction of these majestic and valuable forests the naval stores industry, by its primitive and wanton methods, played an important role.

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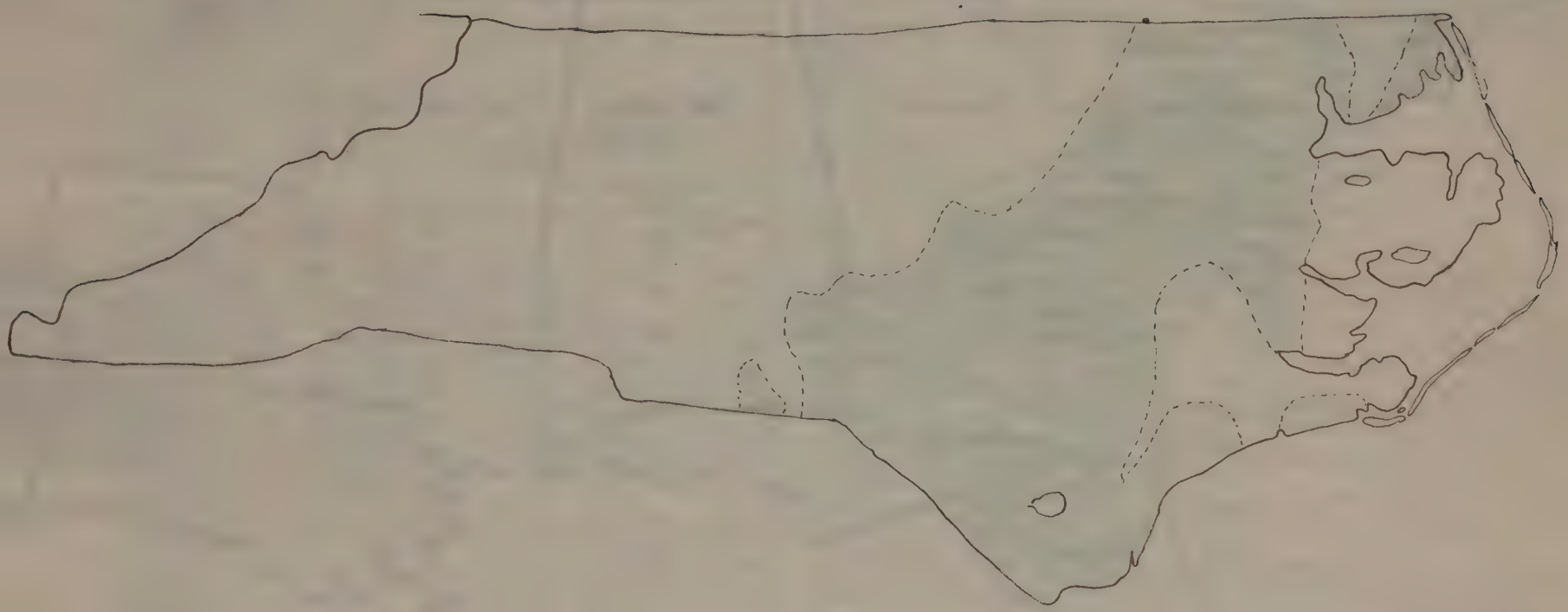
[33] Ruffin, "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 240-250. Pinchot and Ashe, "Timber Trees and Forests of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 132.

[34] Ibid.

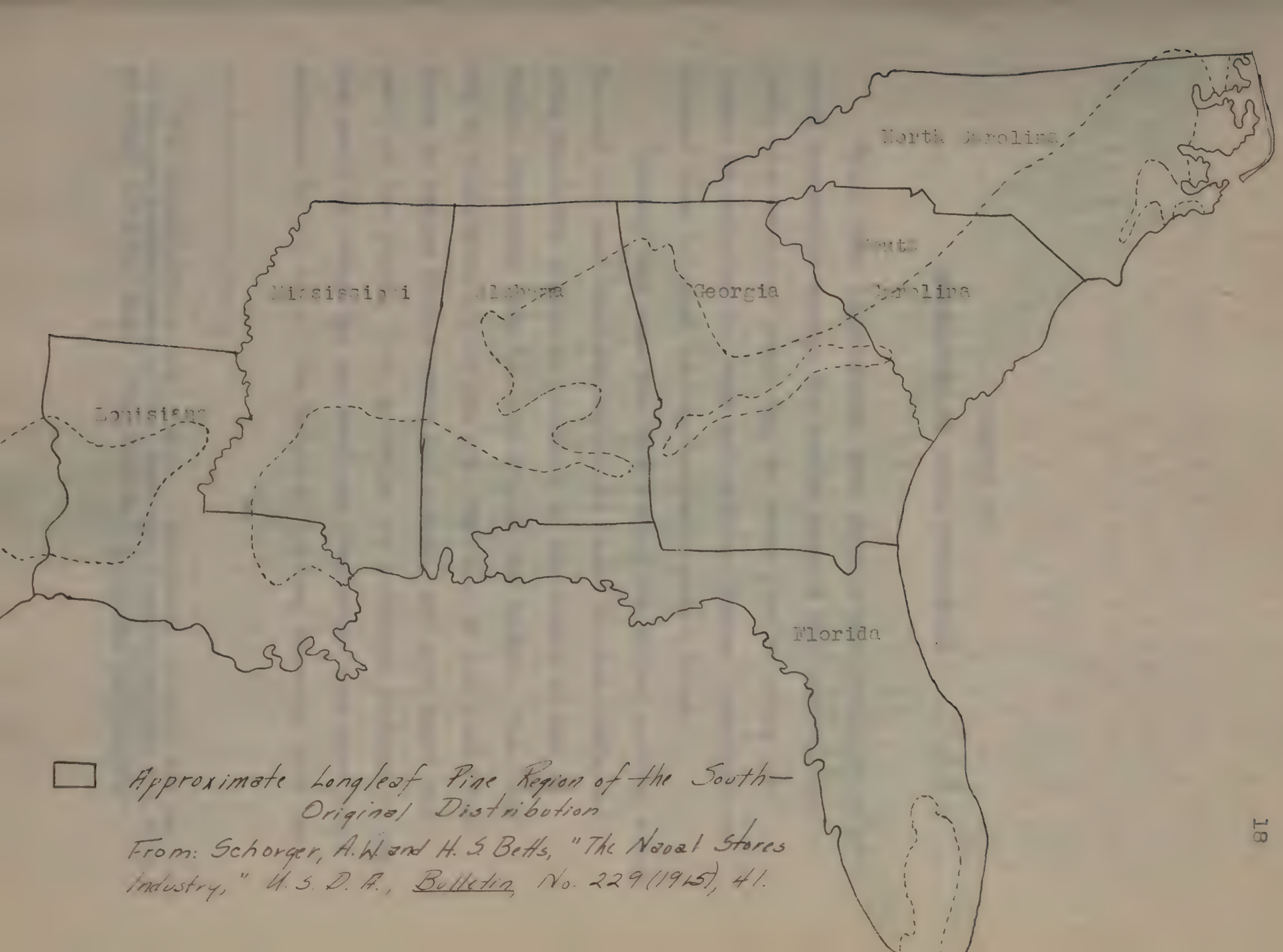
[35] Ruffin, "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 246, 249. Fayetteville Observer, July 1, 1846.

[36] Olmsted, Journey in the Slave States, 346-347. Ruffin, Sketches of North Carolina, 262-264.



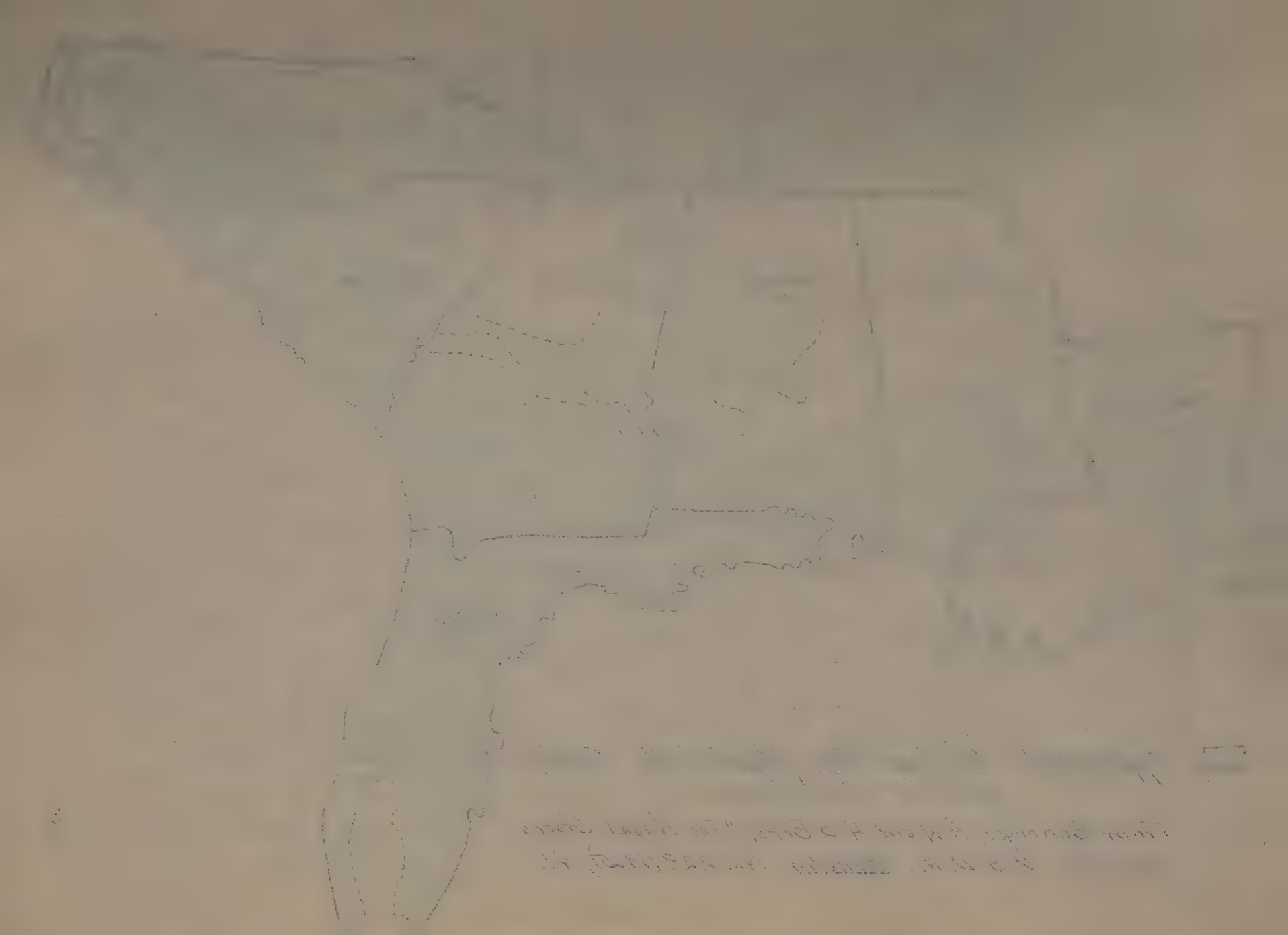
Map of North Carolina Showing Approximate Longleaf Pine Area Original Distribution

From: Pinchot and Ashe, "Timber Trees and Forests of North Carolina," North Carolina Geological Survey, Bulletin, No. 6 (1897), 132.



Approximate Longleaf Pine Region of the South—
Original Distribution

From: Schorger, A. W. and H. S. Betts, "The Naval Stores Industry," U. S. D. A., Bulletin, No. 229 (1915), 41.



CHAPTER II

EXTRACTION OF CRUDE TURPENTINE

While some improvements were made in the distillation of crude turpentine during the latter part of the period, 1789-1861, the method of obtaining the resin from standing pine trees, by chipping the bark and cutting "boxes," remained unchanged from Colonial to comparatively recent times.

"Boxing" the pine was done during the winter months, after the sap had gone down and before it began to rise again--or from about the middle of November to the middle or end of March, depending upon the severity of the winter. The "box" was an elliptical cavity cut into the base of the tree from three to twelve inches above the ground, and just above the swell of the roots. This position was important because it was the point at which the sap wood was deepest and the tree least weakened by the cut.[1] The width of the box depended upon the

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[1] For illustration, see page 47. Moreover, placing the box in the projecting wood of the tree would better ensure the flow of resin into the box. "Turpentine," Carolina Cultivator,

size of the tree, but was usually from eight to sixteen inches. The lower lip of the box was horizontal, the upper arched. The box was cut only slightly inward to avoid cutting into the heart of the tree; it was cut downward about four or five inches and to the line separating the sap wood from the heart wood.[2] This would give a box with the capacity of about a quart. Boxes of equal capacity were desirable so that there could be uniformity

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I (November, 1855), 281. However, figures such as those given above as to the height of the box above the ground are only approximate, as different writers give different figures. One writer, however, maintained that it should be at least eighteen inches from the ground "so as not to be overrun by heavy rains, and for greater convenience in dipping also." Edwin Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. This same writer maintained that when the form of the tree would permit the box should be cut on the north side of the tree, for in that position it was less exposed to the action of the sun, and hence the turpentine, thus protected in running to the box, would retain more of the spirits. In addition to saving more of the spirits from evaporation, putting the boxes on the north side of the tree would also protect them from the dust and leaves that were blown about by the south winds that prevailed most constantly during the summer. The phrase "if the form of the tree would permit" means that in case the tree were not upright the box must not be cut on the side to which it leaned, as that would cause the resin to drop on the ground outside of the box. Michaux, writing early in the nineteenth century, however, said the box was preferably put on the south side, but assigned no particular reason, though he may have had in mind the action of the sun in drawing the turpentine from the tree. North American Sylva, III, 139-140.

[2] Olmsted stated that while the less the axe approached the center of the tree the less the vitality of the tree was endangered, but that "this is little thought about." Journey in the Slave States, 340. Nevertheless, several writers admonished against cutting too deeply into the heart of the tree. "Turpentine Production in North Carolina," Southern Planter, IX (Feb., 1849), 39. "Turpentine," Carolina Cultivator, I (November, 1855), 281. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 452.

as far as possible in the time of dipping.[3] The instrument used in boxing was a long narrow axe made, in Connecticut, especially for the purpose.[4]

The number of boxes to the tree depended upon the size of the tree, the larger trees affording room for three or four, while trees of nine or ten inches in diameter held only one box. In order to preserve the life of the tree it was necessary to leave strips of sap and bark from four to six inches wide between the boxes.[5] Olmsted stated that an expert hand could make

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[3] Some Alabama producers recommended that the box be cut thirteen inches in horizontal width, three and a half inches in horizontal depth, and seven inches in perpendicular depth. This would give a cavity of the capacity of about one and one quarter quarts, which after a few years growth would be equal to one quart. DeBow's Review, XVIII (January, 1855), 61.

[4] Olmsted, Journey in the Slave States, 339. Turpentine axes were also made in Raleigh in 1843 by Silas Burns. Raleigh North Carolina Standard, quoted in Tarboro Press, October 28, 1843. The majority of the axes used in the turpentine business, however, seem to have been imported from the North.

[5] Later when these strips of bark had grown wider and partly covered the old scar, boxes could be cut in them. This was known as "back-boxing." Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 95-96. Merriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 353. According to one writer not more than three boxes should ever be cut in one tree at the same time, and it was best to cut only two. "Turpentine," Carolina Cultivator, I (November, 1855), 281, 283-284. A committee of Alabama producers in 1854 recommended that where a tree was capable of sustaining two boxes, that they be cut side by side with a life streak of bark four inches wide between them in preference to cutting them opposite each other. At least a third of the bark should be left for the support of the tree. DeBow's Review, XVIII (January, 1855), 61. No particular reason was assigned for cutting the boxes side by side, although it might have been

a box in less than ten minutes, and that seventy-five to a hundred was considered a day's work. The number, of course, varied according to the size and proximity of the trees and the skill of the axeman.[6] Some expert hands could cut above the average and were encouraged to do so by receiving pay for extra work.[7] Green hands, or beginners, however, were not expected to cut more than fifty or sixty boxes per day.[8] Ten thousand boxes were generally considered as an average task for a hand to attend during the producing season.[9] Beginning about the

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designed to facilitate boxing, chipping and dipping by the laborer not having to walk around to the opposite side of the tree.

[6] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14. Olmsted Journey in the Slave States, 340.

[7] "Turpentine," Carolina Cultivator, I (November, 1855), 281.

[8] Ibid. C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561.

[9] Macleod stated that 100 acres of timber were required for a task, and that an acre would average about one hundred boxes. This would afford a task of 10,000 boxes. "Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14. Olmsted judged that from 500 to 1,000 trees (or 2,000 boxes) stood upon an acre. Journey in the Slave States, 346. His figures seem too high as an average, however. Forests that would not afford 12,000 boxes on 200 acres were hardly worth working, unless they were situated near a turpentine still or water transportation. Dense forests were more desirable, as the trees were less injured by hard winds, and the hand had less land to walk over in attending his task. "Turpentine," Carolina Cultivator, I (November, 1855), 281. C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 560-561.

middle of November, an expert hand could, by diligent work, have his task of boxes prepared by the middle of March.[10] During the same period, a green hand would cut from 5,000 to 6,000 boxes, which was approximately the number he could attend the first year.[11] The estimated cost of having the boxes cut was one dollar per acre,[12] or if an extra hand were hired for cutting, he was given one dollar per hundred boxes and food for himself.[13] Boxing required more care and skill than any other operation of the whole process, for on it depended in large measure the success of the business. Constant supervision was necessary to see that the hands performed their tasks properly.[14]

After the boxes had been cut and cleaned of their chips, the next work was "cornering," sometimes called "gauging."[15] This consisted of cutting out a triangular chip with two stokes

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[10] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14.

[11] Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453.

[12] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14.

[13] "Turpentine," Carolina Cultivator, I (November, 1855), 283.

[14] Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. "Turpentine Making," Soil of the South, V (December, 1855), 357-353. "Turpentine," Carolina Cultivator, I (November, 1855), 281.

[15] Called "Notching" early in the nineteenth century. Michaux, North American Sylva, III, 140. For illustration see page 47.

of the axe at each of the upper corners of the box, about three inches higher than the tip of the box in the center, and when completed it was called the "face." This face was from ten to sixteen inches wide and from one to one and one-half inches deep, but rarely deeper than the sap wood. Its function was to serve as a channel for the resin to run down into the box and as a guide in subsequent chipping of the tree. This operation could be done very rapidly, and a hand could corner from 600 to 800 boxes per day.[16] When the cornering was completed the boxes would fill with resin, issuing from the cornering as well as from the face made in cutting the box.[17]

The next step was to mark off the forests into tasks, where there were no natural boundaries, by blazing a line of trees. Each task was then subdivided into "patterns" by staking off the land in straight parallel lines forty to fifty yards apart, with visible permanent stakes. Crossing the task

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[16] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14. According to an article dealing with turpentine production in Georgia and Florida a hand could corner from 500 to 600 boxes in a day. "Turpentine," Carolina Cultivator, I (November, 1855), 282. C. Krout, an Alabama producer, thought 300 boxes an average amount for a hand to corner a day. C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561.

[17] Not all the boxes became full at the same time as resin flowed from some trees much faster, and in much greater quantities, than from others, and hence it was necessary for the hands to watch them while engaged in cornering or chipping.

in both directions they cut it up into squares of about half an acre. This was to enable the hand uniformly to follow his row or "through," and to miss no tree in his future attention to them. It was also necessary if the overseer was to inspect the work with any accuracy.[18]

As soon as the boxes were filled, usually around the first of April but depending on the severity of the winter, the "dipping" began.[19] This was done with an iron, trowel-like instrument called a "dipper." It had a wooden handle of three or four feet and a blade about ten or twelve inches long, about six inches wide in the middle, and tapering to an oval point. It was flat on both sides, about a fourth of an inch thick in the middle, and receded to a dull edge at the point and sides.[20] With this instrument and a rude pine bucket suspended by a bale or handle, the hand began dipping. The dipper was thrust down

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[18] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14. "Turpentine," Carolina Cultivator, I (November, 1855), 282. The latter author maintained the marking off of the task should be accomplished as soon as the boxes were cut, otherwise the hands, no matter how faithful their attention, could not avoid skipping a great many boxes in cornering, chipping and dipping.

[19] C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561. Olmsted, Journey in the Slave States, 340.

[20] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14. "Turpentine," Carolina Cultivator, I (November, 1855), 282. According to Michaux, writing early in the nineteenth century, a wooden dipper was used. North American Sylva, III, 140.

to the bottom at one corner of the box, then brought over to the opposite corner, and by a quick upward and outward motion the gum was flipped into the bucket. Considerable skill was required in this operation to prevent loss of the gum during the transfer. When the substance of the box had been collected the dipper was then drawn over the edge of the bucket to cleanse it of all the resin adhering to it. To facilitate this a strip of hoop-iron was fixed on the edge of the bucket over which the dipper was drawn.

When the bucket, with a capacity of from four to eight gallons, was filled it was carried to the nearest barrel, some thirty or forty having previously been placed at stated intervals throughout the task, and emptied. It was left there to drain; the laborer taking another bucket to fill. A hand would ordinarily fill from four to seven barrels a day, although some very active hands might fill ten.[21]

The product of the first dipping of the newly cut boxes was the true "Virgin dip," but the whole product of the first

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[21] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14-15. This number shows some variation. An article dealing with turpentine production in Florida and Georgia said a hand should dip 1,800 to 3,000 boxes in a day, or fill five or six barrels. "Turpentine," Carolina Cultivator, I (November, 1855), 282. C. Krout, an Alabama producer, said a hand could dip six barrels per day. "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561. Another writer, describing the North Carolina industry, said from two to three barrels, or if a "tip-top" hand from four to six barrels could be filled per day. "Turpentine Production in North Carolina," Southern Planter, IX (February, 1859), 40.

year of the pine was commonly called "Virgin dip." As the resin from a newly boxed tree had less surface of wood to traverse before reaching the box, and consequently was less exposed to evaporation than the flow of later years, it was of greater value than the ordinary, or "Yellow dip."[22] Due to its greater value it was barreled separately for market. This quality was most valuable immediately after being gathered, as it diminished in value when kept, due to rapid evaporation of the spirits.[23] The first dip was very thin, oily and transparent, and was primarily valued for the fine white rosin it yielded. Each year after the first, as long as the tree was cultivated, the resin became thicker and gradually changed in color from light cream to orange, yet the yield of spirits did not perceptibly change.[24]

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22 Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. Olmsted, Journey in the Slave States, 343.

23 Merriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. Failure to understand the volatile nature of Virgin dip resulted in such losses, that beginners in the industry were often so discouraged they abandoned the business. "The Turpentine Business," North Carolina Farmer, III (March, 1848), 217-218.

24 Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. "Turpentine," Carolina Cultivator, I (November, 1855), 283-284. Ashe, "The Forest, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 95. Ashe states that after the tree had been cultivated for some time the dip reached the point where it made only slightly better rosin than the scrape, and contained only two-thirds as much spirits of turpentine as the Virgin dip obtained the first year.

Tools used in Gathering Turpentine

1. Hacker
2. Puller, or roundshave, without handle
3. Dipper

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After the first dipping had been completed, the next step was to "chip" or scarify the tree in an inverted chevron-fashion just above the box. This chip or cut extended from the top of the perpendicular lines at the outer edges of the box downward toward the center of the face.[25] The instrument used was called a "hacker," or a "shave," or sometimes an ordinary hatchet. In appearance the hacker resembled a cooper's round shave, except that the cutting edge was shaped to a rounded "U" point about an inch in diameter, and supported by a strong spike or shank attached to a wooden handle of convenient length. On the other end of the handle was a heavy iron weight to give momentum to the free arm stroke used to draw the blade through the bark and outer sap wood. The handle, of course, was lengthened as the years advanced the faces higher up the trees, and the weight on the handle no longer needed. In the latter stages of the operation, a slightly modified form of this instrument, called a roundshave or puller, was used.[26]

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[25] For illustration, see page 47.

[26] "Turpentine," Carolina Cultivator, I (November, 1355), 282. Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. Charles H. Herty, "The Turpentine Industry in the Southern States," Journal of Franklin Institute, CLXXI (March, 1916), 343-344. "Whereas the 'hacker' had a semicircular blade with a short handle and was used the first two years of the operation, the blade of the 'round shave' formed a complete circle and had a longer handle." William E. Cox, Southern Sidelights, A Record of Personal Experience (Raleigh, N. C., 1942), 50.

Hackers and round shaves were both imported and made at

See page 47.

With the hacker the laborer stood nearly in front of the box and usually with one stroke cut a furrow-like gash through the bark and sap wood. Then changing hands or position he made a similar gash on the opposite side, the two gashes forming a V on the face immediately above the box. The standard gash was about a quarter of an inch deep, from one-eighth to one-half inch in breadth, or as narrow as the hacker could be made to cut. A narrow cut, if deep enough, served the purpose equally as well as broad one and saved the tree for additional years of culture; if the cut were wide the face would be carried out of reach prematurely.[27] Nevertheless, Olmsted stated that in

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home. Levine Wood, a local blacksmith, became well known for his work in this line. He began making roundshaves at Fayetteville about 1844, and subsequently removed to Wilmington and formed a company for their manufacture. An advertisement announcing the opening of a new store in Wilmington by G. Prigge mentioned, among other items for sale, "300 round shaves--L. Wood's make." Wilmington Daily Journal, January 1, 1857. For other references to Wood see Wilmington Journal, November 22, 1844, April 28, 1848 and Fayetteville North Carolinian, December 19, 1846. The blades of these tools were required to be kept very sharp and stones and files suitable for this purpose were frequently advertised for sale in the newspapers.

[27] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. "Turpentine," Carolina Cultivator, I (November, 1855), 282-283. "Turpentine Production in North Carolina," Southern Planter, IX (February, 1849), 39. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. The latter writer mentioned that the experiment of chipping over the same spot twice had been successfully made. The purpose was to have the flowing resin exposed on less of the face of the tree, and to make the trees produce for a greater number of years. This, however, does not seem to have been the common practice.

"ninety-nine 'orchards' out of a hundred, you will see that the chip has always been much broader and deeper, than with the slightest care to restrict it, it needed to have been."[28] Each chipping was made immediately above the former, the object being merely to expose a new surface, the flow from the former having become clogged by dust and congelation of the resin. Each tree was chipped usually once in every seven to ten days, and the chipping repeated until the boxes were filled. Usually four to six chippings or from four to six weeks were necessary for filling the boxes.[29]

Two methods of arranging the labor for dipping and chipping were used by the larger proprietors. One method was to divide all the laborers into two classes "hackers" and "dippers." The first class devoted themselves solely to scarifying the trees. Each hand was given a task, that is, a certain number of trees which he was required to chip or hack once in every seven to ten days. The dippers attended solely to emptying the

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28 Olmsted, Journey in the Slave States, 341. He also noted that the trees most severely hacked were the most susceptible to the attack of an insect which rapidly killed them. Ibid., 346. Longleaf pine was susceptible to the attacks of a small black bug which occurred at intervals. Michaux mentioned extensive areas of pines being killed in such manner in 1804. North American Sylva, III, 138. Another attack occurred in 1830, and again in 1847. See Chapter XV.

29 Olmsted, Journey in the Slave States, 341. Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. "Turpentine," Carolina Cultivator, I (November, 1855), 282-283.

See Chapter XV.

boxes as they filled with resin.[30] If this plan were followed the strongest and most expert hands could be kept regularly at chipping, while women and inferior hands could be employed in dipping. One hand could dip four tasks while three good hands were kept busy chipping. It was important to use expert hands in the chipping for, next to boxing, this was the most important operation, and the yield of the trees and the life of the orchard depended in a large measure upon the care and skill with which the trees were chipped.[31] The other and more common arrangement of labor for chipping and dipping was to give each hand a task of trees, which he was required to both hack and dip. Twenty-five hundred trees gave a hand five days a week for hacking and one for dipping.[32]

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[30] Olmsted, Journey in the Slave States, 342.

[31] "Turpentine," Carolina Cultivator, I (November, 1855), 282-283. Southern Cultivator, IV (November, 1856), 172. This plan also allowed the boxes which filled with resin more quickly than the average to be dipped without interrupting the chippers.

[32] Olmsted, Journey in the Slave States, 342. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 452. Olmsted stated that from one to four boxes were cut in a tree, but that the majority of the trees from which turpentine was taken were from twelve to eighteen inches in diameter and contained three boxes. This would give the hand a task of 7,500 boxes, and require him to chip 1,500 boxes per day. An Alabama producer, C. Krout, gave a similar estimate. "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561. Another Alabama writer allowed green hands 5,000 to 6,000 boxes as a task, but added that in North Carolina some of the best hands tended 7,500 to 9,000 boxes per year. "Turpentine Production in North Carolina" Southern Planter, IX (February, 1849), 39. Two articles dealing with turpentine

Turpentine Orchard.

The succession of "chipping" and "dipping" continued from April to October, or until frost, when the resin stopped running from lack of sufficient heat. New boxes were usually dipped five or six times in a season, while older boxes were dipped only three or four.[33] In addition to the frequency and care with which the shipping was done, the weather was a vital factor in the number of dippings obtained in a season. An early or late spring or fall, long droughts during which the trees almost ceased running, or heavy driving rains which filled the boxes with water and floated out the resin, all had their effect on the number of dippings.[34] Seasons which

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production in Florida and Georgia allowed 10,000 to 12,000 boxes as a task for a hand, and stated that a hand could chip over his task once in a week. "Turpentine Making," Soil of the South, V (December, 1855), 357-358. "Turpentine," Carolina Cultivator, I (November, 1855), 283.

In the early 1800's, according to Michaux, a slave was sometimes charged with the care of 4,000 or 4,500 trees of one box, while others were charged with only 3,000 which was an easy task. North American Sylva, III, 141.

[33] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. "Turpentine," Carolina Cultivator, I (November, 1855), 282, 283-284. The longer seasons in the lower southern states usually allowed at least one extra dipping each year. See an article on the turpentine business in Georgia in Savannah News, quoted in Tarboro Southerner, October 2, 1852.

[34] "Turpentine," Carolina Cultivator, I (November, 1855), 281, 282. The quantity obtained at a dipping varied. According to the above article good trees would yield about three barrels of resin per 1,000 boxes at each dipping for the first three years. The second year one-sixth of this amount would be "scrape," and the third year one-fifth. Ibid., 283. This would be a yield of about thirty-six barrels per task of 12,000 boxes. Another

promoted abundant crops of corn and grain, or sunshine and showers interspersed, were also the seasons in which the turpentine yield was greatest.[35]

The quantity made per hand also varied considerably, but averaged around one hundred and fifty to two hundred barrels. Some hands made as high as three hundred barrels in a year.[36]

When the last dipping was completed, usually in November, the next procedure was collecting the "scrape."[37] "Scrape" was

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author estimated about fifty barrels at each dipping per task of 10,000 boxes. "Turpentine Making," Soil of the South, V (December, 1855), 357-358. While still another estimated forty to forty-five barrels at a dipping. C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561.

[35] Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. Wilmington Journal, September 5, 1845. Michaux noted that the yield was less abundant in moist and cool seasons. North American Sylva, III, 141.

[36] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. An Alabama producer stated that while some of the North Carolina hands made 300 barrels a year, they were the "brag" hands of the country. "Turpentine Production in North Carolina," Southern Planter, IX (February, 1849), 39. Several writers estimated 200 barrels per hand each year. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 454. Ruffin, "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 251. "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561. A Florida producer estimated an average of 250 barrels per hand a season. "Turpentine Making," Soil of the South, V (December, 1855), 357-358. Forty-nine green hands on a South Carolina plantation averaged only 125 barrels a hand in 1849. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 454. See also Michaux, North American Sylva, III, 140.

[37] "Scrape" was sometimes called "hard" turpentine, while "dip" was sometimes referred to as "soft."

the resin which in the process of flowing from the fresh cut to the box congealed and adhered to the face. In all years after the first, since it had a greater distance to flow before reaching the box, a considerable portion of the resin congealed on the way, and was often an inch thick on a large part of the face and well worth being collected.[38]

It was usually collected with a small spade, which removed it from the wood letting it fall into a coarse two-legged stool-box. The box was about fifteen inches square and ten inches deep, open at one end, and was placed close up to the tree below the face. When filled it was emptied into a barrel where the congealed resin had to be pounded and forced down so as to occupy all of the space.[39] Although the scrape

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[38] When gathered after the second dipping season, it equalled in bulk nearly two dippings, or about seventy or seventy-five barrels. Thereafter it was necessary to gather it every winter, the bulk increasing the longer the trees were tended. "Turpentine," Carolina Cultivator, I (November, 1855), 282. Some producers had the hands remove the scrape at each gathering and place it in the box at the base of the tree, from which it was taken along with the dip. When the "scrapings" were mixed with the "dippings" it was known as "mixed turpentine." "The Turpentine Business," North Carolina Farmer, III (March, 1843), 217-218. Mixed turpentine usually sold at one-fifth less the price of Yellow dip. This practice of mixing the turpentine, especially perhaps during the last dipping of the season, was commonly indulged in although not sanctioned by the inspection laws. It often created friction between the producers and the buyers, the latter suspecting fraud. Efforts were made to eliminate the practice, but without much success. See below, pages 179-181.

[39] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. "Turpentine," Carolina Cultivator, I (November, 1855), 282. A committee of Alabama producers suggested that cloths be substituted for this box in collecting scrape turpentine. DeBow's Review, XVIII (January, 1855), 61.

[illegible] in the process of [illegible] from the [illegible] and
[illegible] congealed and adhered to the face. In all [illegible]
[illegible] time, since it had a greater distance to fall before
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on the way, and was often an inch thick on a large part of the
face and will work being collected.

It was usually collected in a small spade, which re-
[illegible] it from the wood letting it fall into a coarse bur-
lapped receptacle. The [illegible] [illegible] [illegible]
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[illegible] below the face. When filled it was carried [illegible]
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would yield only about half as much spirits of turpentine as a barrel of dip, and was usually sold at about half the price of the latter,[40] it was preferred by distillers for making inferior or common rosin.[41] After about five or six years of cultivation the trees yielded about as many barrels of scrape as of dip.[42]

The chipping process extended the face up the tree from one to two feet each year,[43] and in North Carolina, with careful

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[40] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. Macleod added that of late, 1846, the more correct rule of selling by weight was becoming generally established. Another writer states that scrape would yield not more than a third of the quantity of spirits as dip. "Turpentine," Carolina Cultivator, I (November 1855), 284.

[41] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15.

[42] Ibid., 15-16. "Turpentine," Carolina Cultivator, I (November, 1855), 283-284. In some orchards at a distance from the market, where all classes of turpentine were of less value, the scrape was not collected when prices were low. Allowing the scrape to accumulate, however, lessened the quantity of dip, for much of the flow was thus made to drop outside of the box. Olmsted, Journey in the Slave States, 343.

[43] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 15. Olmsted said that in some of the oldest orchards in North Carolina the face had been extended upward twelve or fifteen feet, and ladders had to be used to carry it farther up the trunks of the trees. Journey in the Slave States, 342. While this seems to be rather high, Ruffin and other writers corroborate the statement. This height was attained by lengthening the handle in the round shave as the face ascended the tree. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. "Turpentine Production in North Carolina," Southern Planter, IX (February, 1849), 39. Ruffin stated: "This shaving rises about two feet in a year, and thus it takes about seven years to finish one side of a tree." "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 251. "The Turpentine Business," North Carolina Farmer, III (March, 1848), 217-218.

working, an orchard would last from twelve to fourteen years. In Florida and southwestern Georgia, where the chipping and dipping season was longer the life of a plantation was from eight to ten years.[44] When an orchard was a considerable distance from a cheap means of transportation it was frequently abandoned earlier.[45]

The final step in the season's routine was to rake away the leaves and chips surrounding the trees in order to protect them from worms and fire.[46] This task, when practiced, would

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[44] "Turpentine," Carolina Cultivator, I (November, 1855), 234. Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 14, said from ten to sixteen years. Olmsted, Journey in the Slave States, 346, said fifteen years. Another North Carolina writer stated "The same boxes will stand tending or chipping from eight to ten years,...." Southern Cultivator, IV (November, 1846), 172. These figures apparently indicate that it required about seven or eight years to work up the face on one side of the tree, after which it was boxed on the other side, which extended the life of the orchard for a similar period of time. "Turpentine Production in North Carolina," Southern Planter, IX (February, 1849), 39. According to Michaux, the trees were abandoned in five or six years. North American Sylva, III, 141. This, however, was in an age when the forests were more extensive and unspoiled, and when techniques were even more crude than they were in the 1850's.

[45] Washington Whig, quoted in Tarboro Press, September 27, 1851.

[46] Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453. "Turpentine," Carolina Cultivator, I (November, 1855), 233. "Turpentine Production in North Carolina," Southern Planter, IX (February, 1849), 39. Michaux, North American Sylva, III, 140, listed this operation as coming immediately after the first boxing of the tree.

employ a hand for four or five weeks during the winter.[47] Fires were of annual occurrence at that time, as cattle and hogs were allowed to forage in the woods, and the wire grass was burned each spring so it would come out and provide a few weeks pasturage. When the chips and leaves had been raked from around the trees there was little damage, as the fire burned slowly without much flame, and the bark of the trees was not very inflammable. But when the chips from the boxes were left lying about they furnished fuel for the flames, often causing the turpentine in the boxes and on the face above to become ignited and burn with such intensity as to kill the tree; or else so weaken the trunk that it was destroyed by the next storm.[48]

Several writers of articles on the production of turpentine advised that the raking process be executed, and Ruffin stated that

> The Turpentine getters are very careful every spring to rake away the leaves from the foot of every tree, and to burn the collected trash when it can be done slowly and safely. But they cannot always command the progress of the fires; and from that, or other less carefully made fires, great havock is often made among the boxed trees. 49

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[47] Olmsted, Journey in the Slave States, 341.

[48] Ibid., 341-342. Ruffin "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 251.

[49] Ibid. See also a letter, Benjamin Grist to James R. Grist, December, 1850, in which he stated "we must rake & Brune a good eild of our woods this winter." Grist Collection, Letters, Duke University Library. Olmsted noted that in some of the orchards he visited many of the trees had been killed by fire, and,

So common were fires and so great the damage wrought, that one author maintained the state ought to protect the turpentine industry by enacting severe penalties against persons who started a fire where it could extend among trees that had been boxed for turpentine.[50]

As an example of the organization of the labor force on a turpentine plantation, John W. Grist in 1860 owned thirty-five negroes (not counting children) who were hired by Grist and Stickney for the year. Of this number there was a distiller,

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aware of the value of the raking process, stated "but I nowhere saw this precaution taken." Journey in the Slave States, 342. It is, of course, possible that he saw the forests prior to the raking process. He was generally unsympathetic with Southern plantation economy, or its lack of efficiency, but on the whole attempted to be fair in his criticism.

[50] "Turpentine," Carolina Cultivator, I (November, 1855), 283. Churchill Perkins, a turpentine producer in Brunswick County, North Carolina, wrote to D. W. Jordan, April 29, 1851, "I had a fire at Shallotte lost about 2 crops of boxes. I had my Boxes set on fire two or three times this year I am fearful they will burn me up." Jordan Collection, Duke University Library. While the burning of the woods was an annual occurrence, the damage was especially great during unusually dry seasons. In 1855 the newspapers contained frequent references to forest fires ranging from Brunswick, one of the largest turpentine producing counties in the southern part of the state, to Hyde ounty in the north. Other accounts stated that the fires were also raging in the pine regions of South Carolina and Georgia. In some cases the fires destroyed not only turpentine boxes, but forest distilleries, barreled turpentine, and the fences and buildings on farms and plantations. Wilmington Journal, March 16, 23, April 20, 27, May 11, September 28, 1855.

assistant distiller, two coopers, fifteen hands engaged in chipping, a driver, two waggoners--all men--and eight dippers, four of them men and four women. In addition there were four small boys, three of whom helped about the still, and one about the house. There was one woman cook, and two old women who sewed when able or did "Nothing."[51] Olmsted gave an almost identical description of the organization and division of labor at a plantation and distillery which he visited about 1852.[52]

The turpentine business was considered extremely favorable to health and long life, and was sometimes engaged in by persons afflicted with pulmonary complaints, believing that it had remedial effects.[53] The slaves engaged in the turpentine business were said to be healthier, happier, and more intelligent than those engaged in other pursuits, such as cotton, rice, or tobacco culture. One writer stated "it is equally as healthy, and no set of hands have ever been known to willingly leave it and go back to cotton."[54] Olmsted stated that "The

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[51] See List of Negroes belonging to Mr. John W. Grist & worked by Grist & Stickney during the year 1860. Grist Collection, Documents, Duke University Library.

[52] Olmsted, Journey in the Slave States, 346.

[53] Ibid. "Turpentine," Carolina Cultivator, I (November, 1855), 283. "Turpentine Making," Soil of the South, V (December, 1855), 357-358. Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 19.

[54] "Turpentine Making," Soil of the South, V (December, 1855),

negroes employed in this branch of industry, seemed to me to be unusually intelligent and cheerful. Decidedly they are superior in every moral and intellectual respect to the great mass of the white people inhabiting the turpentine forest."[55]

It was also a business which required little capital, and could be conducted on lands too poor for cultivation; it was therefore well suited to persons of small means. Where there was even one hand, in the poorest family, who was able to cut boxes and chip them regularly, the dipping could be done by women and half-grown children. Hence a poor family living near a still or river could make something even if they hired the hauling.[56] According to Edmund Ruffin:

The making of turpentine and tar is the almost sole business of the thinly settled population of the pine lands. They are generally poor and indolent; yet, this business affords good profits even at the present low prices, and enormous profits were made when naval stores were more than double their present prices. Turpentine now sells at $1.80 the barrel at Wilmington, and it has sold for upwards of $4. Mr. Lazarus ra Wilmington merchants told me that he had paid to a poor white man, who worked singly and unassisted in making turpen-

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357-358. It was not uncommon to give turpentine hands money to encourage them in their work, or to assign them a task and then pay them for any additional work performed. See entries under date June, 1857, January 11, and December, 1858, in M. Jones Account Book, 1856-59. Duke University Library. Jones was overseer on one of James R. Grist's plantations in Columbus County, North Carolina. See also Southern Cultivator, IV (July, 1846), 104.

[55] Olmsted, Journey in the Slave States, 348.

[56] "Turpentine," Carolina Cultivator, I (November, 1855), 283.

tine, $1000 for the fruits of his labor of one year."[57]

In regard to production of turpentine on a large scale, one writer stated that

...no business makes better returns for common labor, take one one year with another, not even the culture of cotton and tobacco, especially when the amount of capital employed is taken into consideration. A prime experienced hand, in a plantation newly opened, has gathered $600 or $700 worth of Turpentine in a year, leaving a nett sum of $400 or $500, after all deductions for barrels, hauling, provisions, &c. Two hundred dollars per hand, clear of all expenses, including wages to an overseer, is a very moderate result for an average lot of hands. 58

Or as another writer stated it:

Should a planter take part of his men and put them in turpentine making, plant largely in corn, and not so much cotton, resting such portion of his plantation as he cannot work with his remaining hands and "trash gang," or putting it in pasture; he will then be enabled to make all his own bacon, and raise his own mules and horses in the pastures; thus he saves what money he makes from cotton and turpentine, rests his plantation, and improves it, instead of "clearing more land" every winter, buying Kentucky horses and mules, and often Kentucky corn and bacon. This is what may be done, by taking part of his hands and putting them to turpentine making in the adjoining pine woods, instead of wearing out his plantation in cotton, and when that is done, "go to Texas." This business has other advantages over cotton, being a much surer crop; supplying money throughout the spring, summer and fall, instead of but once a year. 59

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[57] Ruffin, "Notes of a Steam Journey," Farmer's Register, VIII (April, 1840), 251.

[58] "Turpentine," Carolina Cultivator, I (November, 1855), 283. See also Macleod, "The Tar and Turpentine Business in North Carolina," Journal of Agriculture, II (July, 1847), 16.

[59] "Turpentine Making," Soil of the South, V (December, 1855), 357-358.

In many instances this was the program followed, and many turpentine producers tried to raise corn and bacon to supply their needs. In a majority of cases, however, they no doubt had to buy a portion of their provisions, for there was a strong temptation to put their major force and best hands in the turpentine branch of their plantation economy, letting the provision end suffer. This is evident from the fact that corn and bacon were often imported into North Carolina during the decades of the forties and fifties.

During the forties, when the great cotton depression was on, the profits to be made in turpentine lured many to embark in the business. In fact, it was not uncommon during this period for a "foot-loose"[60] white man to hire a number of slaves, buy a few hundred or a thousand acres of pine barrens, or rent the land or the boxes, and in a few years accumulate a modest capital with which to buy slaves and perhaps enter the distilling end of the business.

Hiring of slaves, especially on the part of administrators of estates, became quite common, and took place in the latter part of December and the first week in January. The requirements specified by the owners were for the slave to be furnished three suits of clothes, one of which was to be woolen,

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60 The term is that of Rosser H. Taylor, Slaveholding in North Carolina: An Economic View (Chapel Hill, N. C., 1926), 40.

one pair of stockings, one hat and blanket, one pair of shoes "and Two if worked in Turpentine...All to be new and well made."[61]

In 1850 A. and J. R. Grist hired ten negroes from Thomas Latham for $1,110.[62] In 1852 they hired three negroes from Sarah F. Norcott for $375., promising in addition to providing the usual clothes for said negroes, to pay the taxes on them, and that should they be employed by water and be drowned, to pay full value for them.[63]

Olmsted stated about 1852 that the wages of ordinary practiced turpentine hands were about $120. a year, with board and clothing furnished, but the price kept rising during the fifties, and in 1859 James R. Grist hired two men for $200. each and another for $300.[64]

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61 See a contract stating the conditions of hiring the negroes belonging to the minor heirs of Francis Harper deceased January 2, 1849. Francis Harper Collection, Duke University Library. There are a number of these contracts in this collection.

62 Note for $1,110., from Allen and James R. Grist to Thomas Latham, December 30, 1850. Grist Collection, Documents, Duke University Library.

63 Note from Allen and James R. Grist to Sarah F. Norcott for $375. for the hire of three negroes for the year 1852. Grist Collection, Documents, Duke University Library.

64 Note given by James R. Grist to Edward Stanly for $300. for hire of slave, Clarence, December 31, 1859; note given by James R. Grist to Ann Smith for $400. for hire of two slaves, January 1, 1859. Grist Collection, Documents, Duke University Library. Compare also the prices, ranging from $154. to $200. mentioned by Robert Russell, in 1857. North America Its Agriculture and Climate (Edinburgh, 1857), 160.

If the land were purchased outright it would cost from $1. to $5.per acre, depending upon its location, its proximity to some form of economical transportation, and its value as farming land after its exhaustion in the turpentine business.

Olmsted stated that the turpentine lands he saw were valued at from five to twenty dollars an acre, but that they sometimes sold for two dollars an acre, and that such lands could be purchased at the latter price in any quantity in Georgia and Alabama. These prices were after the turpentine business had attracted many speculators, and after railroads and plank roads had increased the value of the pine lands. As late as the 1340's such lands often sold for from one cent to twenty-five cents per acre, and in one instance a large body of land was sold for taxes, amounting to $3.50. It was subsequently sold, after the building of a plank road in the region, without any improvement having been made on the land itself, for $8,000.[65]

When boxes were rented the amount would, of course, depend on the age of the boxes, distance from transportation and other factors. In 1354, however, C. W. Smith was paid $181.32 for the rent of 17,435 boxes for four years. This was at the rate of $26 per year for a task of 10,000 boxes.[66]

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[65] Fayetteville Observer, quoted in Wilmington Journal, December 31, 1852.

[66] See entry in William R. Smith Memorandum Book (15th page from end of the book). Duke University Library.

Of course coopers and distillers, being skilled laborers, hired for a greater price than ordinary turpentine hands. There were advertisements for both in the newspapers at intervals, and during the forties and fifties distillers were especially difficult to obtain. Producers attempted to train their own slaves as distillers, but often were forced to hire professional distillers. This was especially true of those just beginning the business.[67] Wages for distillers no doubt varied from year to year, and perhaps in different localities, but an entry in William R. Smith's memorandum book in October, 1854, records a distiller as having received twenty-five dollars per month.[68] In 1860 first-class hands rented for $250. per year, with others in proportion depending upon age and sex.

The largest profit from a turpentine orchard was made the first year of cultivation, from its yield of Virgin turpentine and number one rosin. The second and third year were also fairly profitable since considerable quantities of dip turpentine were still obtained. But after the third year the quantity of dip collected decreased rapidly, and it was usually

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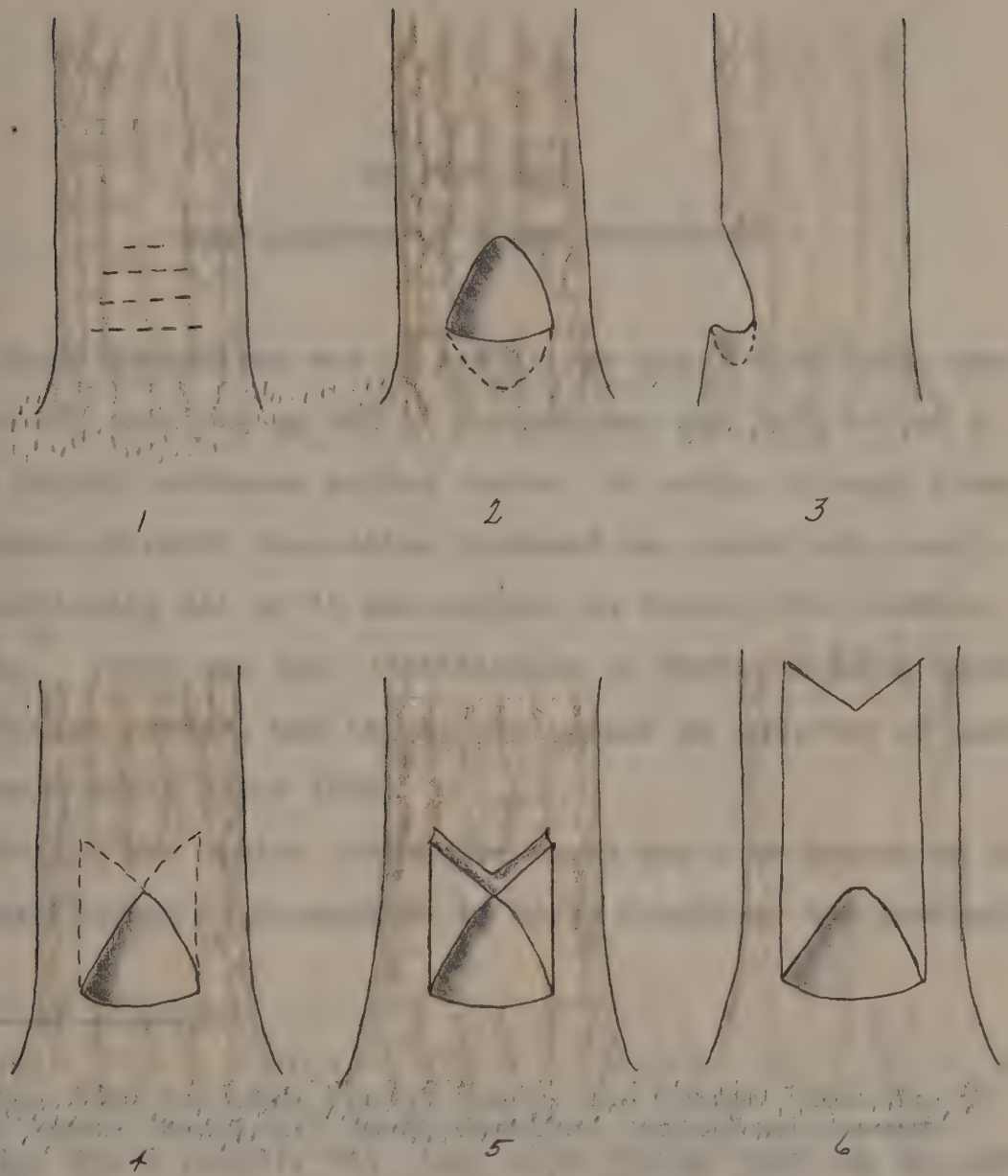
[67] See advertisement of P. R. Hines, in Newbernian, January 6, 1852.

[68] See entry October 23, 1854 in William R. Smith Memorandum book, Duke University Library. C. Krout, an Alabama producer, estimated a distiller's wages at around $500. to $600. per year. "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 560-561.

necessary to open new boxes to maintain provitable operation. When an orchard was first opened, producers generally did not cut the maximum number of boxes but attempted to add a few new boxes each season which would provide some Virgin turpentine each year. Sometimes, however, especially where orchards were located a considerable distance from transportation, maximum operation was maintained for three or four years, after which the pines were abandoned and new areas opened to cultivation. The greater demand and higher price for Virgin turpentine and number one rosin was a strong incentive for such rapid exploitation leading to early abandonment. Where turpentine was produced as a part of farm or plantation economy, more careful methods were probably employed. Producers who rented boxes, or who operated large forces requiring extensive tracts of timber, were perhaps less efficient in prolonging the life of the orchard.



Operations in Tapping a Tree for Turpentine.

1. Gashed tree.
2. Finished box, front view.
3. Finished box, side view.
4. Cornered box.
5. First chipping.
6. Face after repeated chipping.

CHAPTER III

DISTILLATION OF CRUDE TURPENTINE

Crude turpentine was of little use until distilled, when it gave off spirits, or oil of turpentine, and left behind a thick, sticky substance called rosin. In early Colonial times the amount of crude turpentine produced was relatively small, and practically all of it was shipped to England for distillation.[1] There was some distillation in North Carolina during the Colonial period, but it did not become an industry of much importance until after 1790.[2]

During the period 1790-1820, there was some expansion in the distillation of turpentine in North Carolina, but production

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[1] Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 74. Ashe also states that the largest single use for crude turpentine in the United States in the Colonial period was in the manufacture of yellow soap.

[2] Crittenden, Commerce of North Carolina, 54. For the year 1791-1792 North Carolina exported 960 gallons of spirits of turpentine as compared with 13,500 barrels of crude turpentine. Tench Coxe, A View of the United States, in a Series of Papers Written at Various Times between the Years 1787 and 1794 (Philadelphia, 1794), 420.

was limited chiefly by the demands of domestic consumption. The amount produced was relatively insignificant as compared with the production of tar and pitch and crude turpentine. In 1804 about six hundred and fifty barrels of spirits of turpentine were exported from North Carolina,[3] while in 1810 the amount produced was 94,900 gallons, or about 2,160 barrels.[4]

The newspapers during the early part of the nineteenth century contained occasional references to turpentine stills, and Michaux mentioned the use of large copper retorts for distilling turpentine in North Carolina in 1804. They were, he added, "of an imperfect shape, being so narrow at the mouth as to retard the operation."[5] While the still proper was made of copper, the worms were often made of pewter with long goose necks which were very narrow and often gave trouble. These early stills were of varying sizes, from seventy to one hundred and eighty gallons (about six barrels) capacity.[6]

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[3] Michaux, North American Sylva, III, 143.

[4] United States Treasury Department, A Statement of the Arts and Manufactures of the United States of America, for the Year 1810: Part II. Compiled by Tench Coxe (Philadelphia, 1814), 132-133. The statistics of this census are incomplete.

[5] Michaux, North American Sylva, III, 142.

[6] For references to and descriptions of these early stills, see advertisements in Newbern Carolina Federal Republican, September 18, October 16, 1813; Newbern Carolina Centinel, June 27, 1818, March 20, August 28, 1819.

It was in the eighteen twenties and thirties that the turpentine phase of the industry began to lead in production over the traditional products of tar and pitch. In 1830, John Wilson of Tarboro, advertised in the Tarboro Free Press that he was prepared to repair stills and to make

> In the best manner--Still Worms and Crane Necks...of a superior composition, that will in a great measure resist the power of oxidation, possessed by the concentrated acidous substance collected in the Necks and Worms by distillation, and thereby obviate that long prevailing difficulty of Worms and Necks soon getting out of repair--another very important improvement will be made in the proportion of the Necks and Worms which will greatly facilitate the condensation of the spirits, expedite their running, add to the quantity, and save both time and labor. [7]

The perfection of the copper still in the eighteen thirties,[8] and the discovery of a variety of new uses for spirits of turpentine led to considerable development in the industry, both in the production of crude turpentine and in distillation. By 1842 rectified spirits of turpentine had come

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[7] Tarboro Free Press, May 10, 1830.

[8] Vance, Human Geography of the South, 117, says the copper still was perfected in 1834. Ashe gives the date as 1836. "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 75. Some accounts say the copper still was "introduced" in the 1830's. Emory Q. Hawk, Economic History of the South (New York, 1934), 230. Schorger and Betts, "The Naval Stores Industry," United States Department of Agriculture, Bulletin, No. 229 (1915), 3.

into general use as an illuminant,[9] further increasing the demand. The opening of the export market in 1846 by the reduction of the British tariff on spirits of turpentine was an added stimulus to increased production and distillation in North Carolina.

In 1846 a "traveller" passed through North Carolina, and while in Wilmington noted a large number of steam saw mills up and down the river banks, together with "some twenty turpentine distilleries, most of them lately set up, and all doing a very profitable business."[10] The operation of these distilleries he described as follows:

> The fatty matter, or raw turpentine, is packed into barrels, brought to the distilleries, boiled and evaporated in the common way in which spirit is extracted in the alcohol

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9 This product was known by various names, such as camphene, burning fluid and pine oil. The usual method of refining spirits of turpentine for use as an illuminant was through repeated distillation. In 1847 a patent was granted for refining turpentine for the production of pine oil to be used as an illuminant. The resinous matter was separated by treating the turpentine with potassa, and in order to effect thorough admixture the liquid was forced through a succession of fine strainers. Rain water was added and the substance allowed to stand for twelve hours. The pure spirits would then be found floating on top of the water from which it was drawn off. United States Patent Office, Annual Report, 1847 (Washington, 1848), 25-26.

10 Southern Cultivator, IV (November, 1846), 172-173. See also Wilmington Chronicle, March 20, 1846.

distilleries, the steam, passing through a large worm or refrigerator, which is set in an immense vat of cold water. The surface of the water being hottest, passes off, while the attendant keeps pumping cold water through a pipe that forces it to the bottom, causing the hot water, created on the surface, to pass off. The steam comes out in spirits of turpentine below, and is barreled tightly...and the residue is rosin. [11]

As the value of crude turpentine did not warrant long overland transportation, it was found to be more economical to move the stills nearer to the centers of production, so that when rosin declined in value only the spirits would have to be shipped.[12] Moreover, this allowed forests to be tapped farther from the water courses close to which the industry had previously been confined.[13]

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[11] Southern Cultivator, IV (November, 1846), 172-173.

[12] Moving the stills inland also reduced the number of barrels required for crude turpentine, as they could be taken to the stills, emptied and returned for refilling quicker than when the crude was shipped to Wilmington to be distilled. Also, if the crude turpentine was distilled as soon as gathered the yield of the spirits was greater.

[13] In 1846, when the distillation business was chiefly located in Wilmington, a North Carolina writer giving information on the production of crude turpentine, stated "Our turpentine getters make it from ten to fifteen miles from navigation, which is about as far as it will bear hauling." Southern Cultivator, IV (November, 1846), 172. A two mule team or wagon could haul about five or six barrels at a load, and make one load a day when the distance to the still was not more than ten or twelve miles. "Turpentine Making," Soil of the South, V (December, 1855), 357-358. C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 562. Where water transportation was available it was cheaper to haul turpentine a distance of two or three miles, to the river and raft it down forty to fifty miles than to haul to a still six or seven miles overland. "Turpentine," Carolina Cultivator, I (November, 1855), 281, 283.

Passing through North Carolina in 1852, Olmsted noted the spread of the industry inland and its extension into the depths of the forests due to the increased demand. He added, however, that it was still thought a hazardous venture to start the business where more than thirty miles of wagoning was necessary to bring the spirits of turpentine to a railroad or to navigable water.[14] He gave the following description of a forest distillery which he saw in operation:

> The stills used for making spirits or oil of turpentine from the crude gum, are of copper, not materially different in form from common ardent-spirit stills, and have a capacity of from five to twenty barrels; an average size being, perhaps, ten barrels.
>
> The forest distilleries are usually placed in a ravine or valley, where water can be brought to them in troughs, so as to flow, at an elevation of fifteen feet from the ground, into the condensing tank. At a point at which the tank will decline from it in one direction, the still is set in a brick furnace. A floor or scaffold is erected on a level with the bottom of the still-head, and a roof covers all. The still-head is taken off, and barrels of turpentine, full of rubbish as it is collected by the negroes, are emptied in. When the still is full or nearly so, the still-head is put on, and the joint made tight with clay; fire is made, and soon a small transparent stream of spirits begins to flow from the mouth of the worm, and is caught directly in the barrel in which it finally comes to market. When all the spirits which can profitably be extracted, are thus drawn off, the fire is raked out of the furnace, a spigot is drawn from a spout at the bottom of the still, and the residuum flows out--a dark, thick fluid, appearing as it runs like molasses.[15]

There were some improvements made occasionally in the

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[14] Olmsted, Journey in the Slave States, 339.

[15] Ibid., 346.

Turpentine Still.

W. P. Snyder.

Drawing off the Turps

Drawing off Resin.

process, and no doubt local stills had minor differences conditioned by location, water supply and other factors, but the main principles remained unchanged.[16]

Recommendations made by a committee of turpentine producers in 1854 suggested that whenever possible the distillery should be located on the side of a hill, which would afford the simplest and easiest means for elevating turpentine to the still by building a railway from the top of the hill to the platform. But if the still had to be built upon level ground the use of the machine employed by flour mills to elevate their sacks and barrels to the upper stories was recommended. This machine consisted of a platform with four upright posts and a roller in the head of each. Two ropes from the roof of the still-house passed beneath the rollers, one on each side, through sheave blocks and around a cylinder turned by a crank from below.

In regard to the best mode for the distillation of turpentine, the committee recommended the use of a small still, or with a flat and greatly extended surface. The still was to be

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16 In 1847 a patent was granted for an agitator or stirring aparatus to be attached to a turpentine still and used during the process of distillation. While the stirring of various liquids during boiling was quite common, it had never been applied to turpentine. The advantage in this case lay in the nature of turpentine itself, which consisted of two liquids, one of which boiled at a much higher temperature than the other. United States Patent Office, Annual Report, 1847, p. 26.

[illegible]

[illegible]

[illegible]

charged to only two-thirds of its capacity, to allow for the expansion of the turpentine during ebullition. The amount of water to be supplied was to be equivalent to the amount condensed in the still-worm, and kept in the same ratio as long as the spirits continued to pass through the worm. Their concluding statement was a recognition of the customary procedure in the business: "Your committee deem it unnecessary to enlarge on this point, as they presume that in all cases of new beginners a practical distiller will be employed."[17]

In 1856, Daniel Reid of Washington, North Carolina, obtained a patent for the use of steam, instead of the direct application of fire to the stills, in the distillation of turpentine. The advantages over the old method were: 1) greater safety and less consequent loss by fire destroying the still; 2) less waste of the spirits, with less liability of scorching; 3) the capability of doing continuous work, so that no time was lost in charging the stills, and therefore the capacity to do three times the amount of work in a day. In addition, it was believed that less labor would be required to operate the stills.[18] Whether this improvement was ever put into widespread use is not known, but it is doubtful. Its advantages

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17 "Turpentine Product of the South," DeBow's Review, XVIII (January, 1855), 62.

18 Washington Despatch, quoted in the North Carolina Planter, I (July, 1856), 232.

might have led to its adoption by custom distilleries in the towns, where one plant contained several stills to which the steam might be applied. But in the eighteen fifties the amount of distilling carried on in the towns was diminishing and the number of forest stills increasing. The arrangement was much too complicated for a temporary forest still, and it is probable that the still which Olmsted saw in operation in North Carolina during his tour through the South was more characteristic of the business.

During the period when most of the distilling was conducted in Wilmington--1842-47--there were several large establishments which operated as many as five stills within one plant, together with large storage houses for both crude and spirits of turpentine, glue houses, cooper shops, wharves, and other necessary buildings. In 1845, Wilmington had nine separate establishments, operating thirty stills, or an average of more than three stills for each distillery.[19]

Crude turpentine, or resin, yielded from six to eight gallons of spirits per barrel, depending upon how soon it was distilled, its cleanness, and an adequate supply of cold water. For this latter reason, it was better to locate the still on a stream where water could be conveyed to the condensing tube without having to carry it by hand. The general calculation

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[19] Wilmington Chronicle, quoted in Tarboro Press, January 25, 1845.

was that five gallons of crude yielded one of spirits.[20] "Scrape," however, rarely yielded as much as three gallons of spirits per barrel. All kinds of turpentine, on an average, yielded two barrels of rosin from three of the raw gum.[21]

After the spirits of turpentine had been distilled, the residuum was the rosin of commerce. As there was not sufficient demand to make transportation from inland distilleries profitable it was usually conducted a little distance from the still by means of a wooden trough, and allowed to flow upon the ground. At a distillery that had been in operation only one year, Olmsted noted a pool of rosin estimated to contain over three thousand barrels.[22] Only the rosin from Virgin dip

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[20] C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 353. "Turpentine," Carolina Cultivator, I (November, 1855), 284. Olmsted said that fourteen barrels of dip and two of scrape would yield upon distillation, two barrels of spirits and eight of rosin. Journey in the Slave States, 346. These figures would require seven and one-half barrels of crude to make one of spirits. They also coincide reasonably well with the statement of another writer that one barrel to contain spirits would be required for every seven barrels of soft turpentine. "Turpentine," Carolina Cultivator, I (November, 1855), 284. However, the amount of rosin produced seems rather low. Sixteen barrels of crude should produce about twelve of rosin. Although the cleanness of the crude resin was a factor in determining its value and the quantity of spirits to be obtained from it, as noted by several writers, Olmsted stated that it usually contained much rubbish (chips and leaves). Journey in the Slave States, 341.

[21] "Turpentine," Carolina Cultivator, I (November, 1855), 284.

[22] Olmsted, Journey in the Slave States, 345. At another distillery in Alabama it was stated that "15,000 barrels of

turpentine, called number one or white rosin, was saved there. At the distilleries along the river banks a second quality was also saved, while a still poorer quality was allowed to waste. When the distiller intended saving the rosin it was drawn off into a vat of water, which separated it from the chips and other rubbish contained in the gum, and then barreled for market. Although Olmsted did not specifically mention them, rosin strainers were in common use at this time as revealed by the newspaper advertisements. They were broad pieces of wire, the mesh being of varying degrees of density. The wire was apparently fitted into the vat and served to remove the rubbish from the rosin as it poured through. Smaller strainers were

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rosin cared thrown away, because it cannot be shipped at the present high prices of freight and other expenses." DeBow's Review, XVIII (January, 1855), 190. After the rosin became cold it was hard and brittle and in some cases seems to have been used as fuel in the furnaces of distilleries, as it sometimes was on steamboats.

23 R. H. Blackwell & Company, commission firm at New York, wrote to A. & J. R. Grist, January 13, 1853: "Note you expect to do a large business next year & determination to make as good White Rosin as can be made--that's it exactly--do it & 'twill pay you well----.have no question that fair remunerating prices will be obtained & especially so, for choice White Rosin, of which you have this Year sent us none--". Grist Collection, Letters, Duke University Library. There was a steady demand for good number one rosin but so difficult was the sale of inferior grades, that Benjamin Blosson, commission merchant at New York, after repeated appeals to D. W. Jordan, turpentine producer at Little River, South Carolina, finally in desperation wrote, April 27, 1848: "do not I beseach you send any Bastard No. 1 Rosin, it will not sell." Jordan Collection, Duke University Library.

possibly used when pouring the rosin into the barrels.

The distillation of turpentine was an expensive operation, requiring a considerable outlay of capital. According to one writer,[24] the average cost of a still was estimated at $1,500; another listed the cost at $2,000.[25] In 1854 D. W. Jordan, a South Carolina producer, paid $1,258. for a still.[26] In 1859 James R. Grist, one of the larger North Carolina and Alabama producers, paid $1,426. for a custom made still and fixtures manufactured in New York; and the following year he paid $1,940. for another, probably of a larger capacity.[27] However, not all stills were procured from the North. Even in the earlier days crude copper stills were made in North Carolina for the turpentine trade.[28]

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[24] Merriot, "Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 454.

[25] C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII (December, 1849), 561.

[26] See entry under date of June 1, 1854, William R. Smith Memorandum Book, Duke University Library.

[27] Statement of J. R. Grist in account with R. M. Blackwell & Company, March 16, 1859. Grist Collection, Documents, Duke University Library. Also statement of A. &. J. R. Grist & Company in account with R. M. Blackwell & Company, October 15, 1860. Grist Collection, Letters, Duke University Library. These prices include freight, commission and other charges.

[28] See advertisements by Thomas M'Lin in the Newbern Carolina Centinel, May 2, 1818, March 20, and August 28, 1819. That some of the stills were imported from Philadelphia is also shown by advertisements of John Templeton in Carolina Centinel, June 15, 1822, and June 13, 1829.

In the eighteen forties when the distillation of turpentine developed into a large business in North Carolina, local makers of stills became more common, although the larger stills were still procured from the North. In 1848 F. T. Ward of Fayetteville reminded turpentine producers that "Those in want of Turpentine Stills...can be furnished by me at the shortest notice, and at reasonable prices. They would do well go give me a call before purchasing North."[29]

In 1851 Joseph Wollering of Raleigh advertised in the Tarboro Press that he could save purchasers two hundred dollars on turpentine stills and fixtures. His prices for standard type stills ranged from four hundred dollars for a still of seven barrels capacity, to nine hundred dollars for one of thirty-five barrels capacity. For custom built stills he charged according to size and weight, at the rate of thirty-seven cents per pound. These prices included the fixtures--still-cap, arms and worms. He guaranteed his work for twelve months, "fire and burning excepted," and offered to deliver stills within fifty miles of Raleigh, at the shortest notice.[30]

In addition to the initial cost of the still and fixtures,

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[29] Fayetteville North Carolinian, July 29, 1848.

[30] Tarboro Press, September 27, 1851. See also advertisement by Mahler & Schwartz, copper and iron workers, who located in Fayetteville in 1851, and advertised: "Turpentine or other Stills made to order and warranted to work well." Fayetteville North Carolinian, June 28, 1851.

a second expensive item incurred by the distillers was barrels for spirits of turpentine. There was also the still house, the glue kettle and house, pumps for supplying water, vats and tubs of various types, a storage house for spirits of turpentine, quarters for hands, loading platforms or wharves, and the hire of a distiller and various workmen.

Not only was the initial outlay in the distilling business extensive, but there was a constant danger of loss by fire. Few substances were more inflammable than turpentine, and as was natural an establishment would not have been in operation long before much turpentine would have been spilled, or would have leaked through defective barrels. When barrels were re-used they were no doubt coated both outside and inside with turpentine. The net result was that turpentine distilleries frequently caught fire, either by the carelessness of the operators in handling the barrels of crude turpentine, by overheating the still, or in recharging it while too hot. From 1842 to 1853 there were twenty stills destroyed by fire in the vicinity of Wilmington, not to mention the many fires that occurred on wharves and other loading places where naval stores were kept.[31]

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[31] Joseph H. Flanner's distillery at Wilmington was twice burned, Wilmington Journal, January 28, 1853, Wilmington Daily Journal, February 7, 1853. Benjamin Hallett, of Wilmington, suffered three fires at his distillery. Wilmington Chronicle,

On January 26, 1842, the Wilmington Chronicle published an account of the burning of a large turpentine distillery in Wilmington:

Between ten and eleven o'clock on Saturday night the cry of fire was again sounded. A small blaze was discovered near one of the furnaces of Mr. Henry Nutt's Turpentine Distilleries, situated near the Rail Road Depot, and scarcely was the alarm given, before the whole establishment was in flames, of such combustible nature is every thing about works of this kind. All the buildings were destroyed, together with a quantity of merchandise in a store on the premises, a thousand barrels of raw turpentine, and thirty or forty barrels of the spirits.--- The distilling apparatus was also much injured. Mr. Nutt's loss is probably nearly or quite six thousand dollars. It was but by the greatest exertions that the spread of this fire could be prevented.

When such fires occurred the whole population generally repaired to the scene to aid in fighting the flames. On several occasions the editor of the Wilmington paper commented upon the assistance rendered by the slave population. On this occasion, he stated:

It is proper too that the slave portion of our population should be commended for their exertions on these occasions, as on all similar ones. None take hold with more alacrity, or labor with more faithfulness than do they. Such evidences of their good conduct should be made known, and to those particularly who have no conception of their being impelled by like motives to what actuate us in the performance of duty.

November 18, 1841, Wilmington Journal, January 31, 1845, December 10, 1858. Joseph R. Blossom's fires, four in number, as reported in the Wilmington Journal, extended over the period March 17, 1843, July 13, 1855, May 9, 1856, and in the Fayetteville North Carolinian, February 15, 1851. Brown & DeRossett's distillery was burned four times in less than four years. Wilmington Chronicle, November 17, 1841, May 18, December 28, 1842, May 8, 1844. On May 18, 1844 they advertised the remains of the equipment together with their lease for sale. Notices of fire destroying individual forest distilleries were also common.

So dangerous were turpentine distillery fires and so frequent was their occurrence in Wilmington, that in May, 1844 when an attempt was made to erect a distillery in a thickly settled part of the town, the editor of the Chronicle offered vigorous objections. Pointing out the dangers which he said should be apparent to every one, he added that there was ample space above and below the town as well as across the river affording sites equally eligible as that proposed. "We know not if the legal powers of the town authorities are sufficient to prevent the erection of the contemplated buildings, but their interposition has been invoked by a strong memorial very generally signed by the citizens."[32]

Indeed so common did distillery fires become, that when A. A. Brown became agent for the North Carolina Fire Insurance Company in 1851, he announced that the company would insure buildings of every description "except Steam Mills and Turpentine Distilleries."[33]

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32 Wilmington Chronicle, May 8, 1844. On this same day the Chronicle carried an account of a fire the previous Thursday which had broken out near one of the stills of Brown & DeRosset's Distillery on the other side of the river, facing the town. The fire had resulted from charging the still with fresh material before it had sufficiently cooled. All the buildings, mostly sheds, together with six or seven hundred barrels of rosin were destroyed, at a loss of twelve or fifteen hundred dollars.

33 Wilmington Herald, May 10, 1851.

CHAPTER IV

EXTRACTION OF TAR

Compared with the production of turpentine, tar-making was a more primitive and less expensive process. Yet, at the usual price of both articles, it may have been the more profitable undertaking, for a hand engaged solely in making tar would make from four to five hundred barrels per year.[1]

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[1] The description of the process of making tar is taken chiefly from the article previously cited by John Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 16-18, and from Olmsted, Journey in the Slave States, 347-348. Crittenden, Commerce of North Carolina, 54-56, gives an account of the process used in the late Colonial and Revolutionary periods, which was essentially the same as Macleod's description. For a contemporary account during the Revolutionary period, see J. F. D. Symth, A Tour in the United States of America:... (Dublin, 1784), II, 61-62. Another fairly detailed account is given in Michaux, North American Sylva, III, 141-143. A description of methods used in North Carolina during the first half of the eighteenth century can be found in John Brickell, The Natural History of North Carolina (Dublin, 1737), 265-266. This citation is in the edition published in Raleigh in 1910. Ashe states that the process of making kilns and burning tar was the same in the Colonial period as after the Civil War, and in fact, much the same as that used by the ancient Greeks. "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 73.

The raw material for making tar was usually the fragmentary remains of decayed longleaf pines which had lain on the ground for years--usually called "lightwood." These fragments were the heart portion of the body and limbs of fallen trees, after time and fire had destroyed the sap wood. The forests were usually well covered with these dry pieces of lightwood,[2] which were gathered and carried to the place selected for the kiln where they were split and cut into pieces from one to three feet in length. Abandoned faces of turpentine trees were sometimes cut out and used in making tar. Being completely saturated with resinous matter, they made the richest kind of lightwood, and a hand could make more tar in a given period of time from this material than from the fragments gathered from the ground.[3] Despite this fact, and also its superior quality, most of the tar produced in North Carolina was made from surface gathered

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[2] Macleod stated that while the ground was not entirely covered, these fragments were "so thick as to fill the body of a horse cart, in many places, in a square of ten yards, and very often in a square of ten feet." "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 16. According to Michaux, the dead wood was not renewed upon a tract that had been cleared in less than ten or twelve years. North American Sylva, III, 145.

[3] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 16, 18. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 454. Olmsted, Journey in the Slave States, 347. "Turpentine," Carolina Cultivator, I (November, 1855), 284.

lightwood.[4]

The first step in preparing a kiln was to draw a circle on the ground, usually from ten to thirty feet in diameter, depending upon the number of barrels desired.[5] The inner surface was then shaved over with hoes, and in this process was scooped out with a gentle inclination from the edge to the center of the circle, making a shallow basin-like form. The earth was pounded until smooth and firm, and sometimes coated with clay. A covered wooden trough was imbedded into the ground, one end of which was placed at the approximate center of the circle; the other end reached eight or ten feet outside the circle and was suspended over a pit, with a capacity of from ten to fifteen barrels, into which the tar flowed.

Usually the trough was from three to six inches wide and from three to five inches deep, but its size was governed by that of the kiln. It was placed with considerable inclination--enough to move the warm tar briskly. From one to three

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[4] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 17. In the 1850's after the turpentine mania of the forties had left thousands of old turpentine faces, more tar was perhaps made from the faces. In 1852, James R. Grist sold all the abandoned turpentine faces and lightwood on about 6,000 acres of land in Brunswick county to a company engaged in the manufacture of tar by a new process. Wilmington Journal, June 4, 1852.

[5] A kiln of three hundred barrels capacity had a diameter of thirty feet and was ten feet high. Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 17.

feet of the inner end of this trough were left open and uncovered to receive and carry off the tar as it settled. Over and around the open end of the trough, round unsplit lightwood was carefully laid in pen-like form for three or four feet to protect the end of the trough. The split lightwood was then laid all around with the same inclination inward, until it was eight or ten feet high. Michaux stated that the finished kiln might be compared "to a cone truncated at two-thirds of its height, and reversed, being 20 feet in diameter below, 25 or 30 feet above, and 10 or 12 feet high."[6] This operation was known as "setting the light-wood."

The next step, "boughing," consisted of sticking green pine boughs into the outer edge of the kiln, which when boughed presented a mount of evergreen, and was ready for "embankment." This was accomplished by heaping the earth around the mound of wood, the boughs preventing it from entering through the crevices of the wood into the kiln. The earth was kept in place by a pen of poles or rails built around the mound. Between this pen and the circle of the kiln the earth was trampled down.

The top was similarly covered with pine boughs and turfed with segments of earth cut from ground where small roots and

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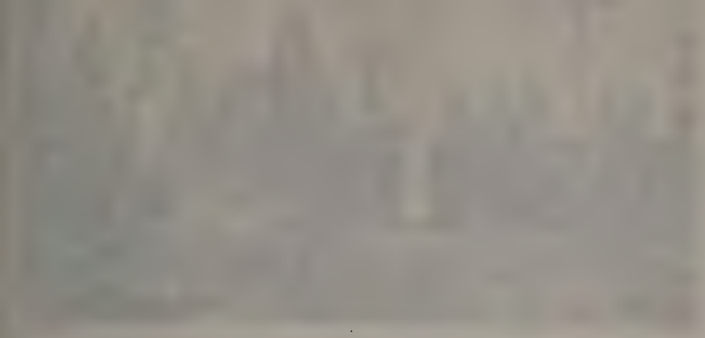
6 Michaux, North American Sylva, III, 144.



Operations in Preparing and Burning Tar Kiln

1. Setting the Lightwood
2. Boughing
3. Embanking
4. Burning
5. Barrelling

1

2

3

4

fibres were most likely to hold the earth together. These were carefully carried by hand to the top of the kiln and placed in the best position to smother the flame. To facilitate this a rude gangway of long poles laid side by side reaching from the ground to the top of the kiln was erected. The entire top was turfed, except for about three inches around the rim where the fire was to be applied, and an area of about two feet in the center designed to draw the heat and fire from the outer circle of the kiln toward the center.

The kiln was then fired at the exposed spots around the rim and in the center. When the fire began to burn vigorously the central opening was gradually closed until it was as well turfed over as the rest and all flame at the top and center of the kiln was entirely suppressed. As the burning progressed new holes were made farther and farther down the sides and fire begun in them, gradually forcing it from the top to the bottom.[7]

From one to two days were required for the tar to begin running through the trough into the tar pit, from which it was dipped and poured into barrels. Several days (from four to ten, depending on the size), were required for a kiln to "run off,"[8] and during that period it was kept under constant

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[7] Crittenden, Commerce of North Carolina, 55.

[8] Michaux stated that a kiln of sufficient size to produce one hundred to one hundred and thirty barrels of tar required eight or nine days for burning. North American Sylva, III, 143.

surveillance to subdue any sudden outbreak of flame which if long permitted would become dangerous and difficult to suppress. Burning a tar kiln required considerable skill, as supplying too much air reduced the amount of tar received, while too little air endangered the success of the operation by explosion of the kiln. "Tar-burning" was, in fact, a vocation or trade, much like burning brick.

The charcoal remaining from a tar kiln was regarded as exceptionally good for smith works. A kiln large enough to produce one hundred and fifty barrels of tar would yield from five to eight hundred bushels of charcoal.

Tar kilns were not always "burnt off" as soon as made. Sometimes they remained stacked for one, two, or three years without injury, the owner awaiting an advance in price. When the kiln was not to be burnt off immediately, the steps of "boughing" and "embanking" were postponed until the time of burning.[9]

Olmsted also gave a brief account of the process of tar-making, but did not mention the use of green boughs or of the trough. According to his account, a ditch was dug to conduct the tar from the kiln to the tar pit outside. He condemned this slovenly method, and pointed out that it was chiefly due

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[9] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 17.

to the sand and other impurities resulting from it which made Carolina tar inferior to that of Northern Europe, and allowed the latter to compete even in American ports.[10]

Carolina tar and pitch were also condemned in England due to the crude leaky barrels in which they were shipped, and because they burned the cordage more than the products made in the Baltic provinces. This characteristic was attributed to the fact that they were made from dead wood, and the burning was carried on so rapidly and at such high temperatures that wood acids were formed in large quantities.[11]

About 1852 an improvement was effected in the manufacture of tar which resulted in an improved product and greater yield, but which apparently was not widely adopted. The improvement consisted of an oven for roasting lightwood invented by W. P. McConnell of the District of Columbia. A company was formed

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10 Olmsted, Journey in the Slave States, 347. W. Duncan, "North Carolina," DeBow's Review, XI (August, 1851), 109. Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 74-75. Hugh Williamson, writing in 1812, also condemned the indifferent manner of making tar in North Carolina. The operators, he said, persisted in careless habits acquired in Colonial days when there was a bounty on tar, paid according to the number of barrels, not the quality. The operator was aware that he lost much tar by his negligence, "but he supplies the loss by the addition of sand." History of North Carolina (Philadelphia, 1812), II, 213-215.

11 Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 74-75.

under the name of Viers, Townshend and Company to make practical use of the invention, and as a step toward its introduction into North Carolina an oven was erected on the plantation of James R. Grist, on Livingston Creek, Brunswick county. The results achieved their most sanguine expectations. They produced five to six barrels of the best quality tar in an hour, as well as excellent charcoal. Other valuable products such as lampblack and creosote, were also obtained by the same process. The Wilmington Journal of January 9, 1852, in noticing this new invention commented:

> As this is almost the first attempt to improve upon the manufacture of tar, we think it will be found worthy the attention of those feeling an interest in the business, as, if brought into general use, it will tend to develop more fully the production of one of the staples of this part of the State by rendering available a large amount of material, either worthless, or comparatively so, under the old system, and by adding to the yield from those already brought into use.

Later that year, June 4, 1852, the Journal printed a more detailed notice of the new machine for making tar, coal and gas, stating that the Company had erected a small machine near the railroad in Wilmington and had given a demonstration. The machine was described as cylindrical in form, the rim being built of thin sheet iron, with four flues or retorts extending from the top plate to the bottom. The wood to be converted into tar and charcoal was placed in the machine from the doors, and the flues heated with a small amount of charcoal made from the same wood. An intense heat was created in the body of the

machine, causing the tar to run out from a spout in the bottom. The flues were the only part of the machine exposed to fire, and as they were made of thick boiler iron and exposed for only a few hours each day, it was estimated that they would last more than two years.

Two hands were sufficient to attend two machines designed to contain four cords of lightwood each. Their work consisted of placing the wood in the ovens, filling the barrels with tar, and removing the charcoal. As only four or five hours were required to char four cords of wood, one complete operation could be conducted in each machine in a day. The four-cord machine was sufficiently small in size and weight so that it could be moved from place to place in the forest; however, all size machines (up to twenty cords) were built. The price of the machines was determined by the size, but it was said to be comparatively small.[12]

Fourteen prominent business men of Wilmington who witnessed the demonstration of the tar machine testified to its satisfactory operation. Whereas under the old method only about two barrels of poor quality tar were produced from one cord of lightwood, the machine produced one and one-third barrels of superior tar from only one-fourth of a cord of wood, or at the ratio of five and one-third barrels per cord.

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[12] Wilmington Journal, June 4, 1852.

The tar made from these machines was sold in the Wilmington market for $2.25 per barrel, while that made in the traditional manner brought only $1.70 per barrel. The tar was clean, the wood regularly charred, and the coal of the best quality; while the gas generated was not as objectionable as that made from coal since it had no unpleasant smell, either in its preparation or in its use.[13] Will E. Hyde and Dugald MacMillan, naval stores inspectors at Wilmington, also testified that the tar was of a much higher quality than any that had previously been brought to that market and worth much more per barrel.[14]

No further reference to the patent tar machine occurred until February of the following year, 1853, when the Journal announced the recent arrival of a lot of tar produced by one of the machines owned by E. Hannum in Wayne county. Hannum testified that he had used the machine for a considerable length of time, that it extracted all the tar from the wood, made a better quality as well as excellent charcoal, and that the flues remained in good condition after extensive use. Dugald Macmillan, who also inspected this lot of tar, found it "of very fine quality, free from sand, &c., put in fine

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[13] Ibid., June 4, 1852. When the Wilmington Gas Light Company was organized in 1853 it adopted one of McConnell's machines for the manufacture of gas from wood. Wilmington Herald, February 9, 1853.

[14] Wilmington Journal, June 4, 1852.

order, being in neat iron-bound casks, &c."[15]

Despite this successful demonstration of an improvement in the method of producing tar, it apparently was not speedily adopted. Olmsted, when passing through North Carolina in the fifties, mentioned this new method of roasting the pine in iron ovens, but from the description which he gave of the old fashioned process of burning in kilns it would seem that the latter was the one which remained in vogue.[16]

Of course, this machine, like a turpentine distillery, required capital, something which the resident of the pine barren was not likely to have, and hence his only recourse was to continue production in the old way. If the new machine was to be adopted it would have to be by the larger turpentine producers who had the required capital, and an ample supply of acres to furnish lightwood and abandoned turpentine faces to feed the oven.[17]

Another product of the naval stores industry was pitch, which was simply a concentration of tar obtained by boiling it

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15 Wilmington Journal, February 18, 1853.

16 Olmsted, Journey in the Slave States, 348.

17 Slaves were sometimes allowed to make tar on their own time and retain the proceeds of its sale. At least this seems to have been the case on James R. Grist's turpentine plantations. In such instances it was no doubt made by the old fashioned kiln method. Benjamin Grist to James R. Grist, December 25, 1860. Grist Collection, Letters, Duke University Library.

in large iron kettles set in furnaces. Three barrels of tar made two of pitch.[18]

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[18] Crittenden, Commerce of North Carolina, 56. Smyth, A Tour in the United States of America, II, 62. Michaux stated that to obtain good quality pitch, the tar should not be reduced to more than half its bulk. North American Sylva, III, 143. Pitch seems also to have been made as a by-product of the distilling of turpentine, or perhaps this term was employed loosely in referring to some grades of rosin. There were several references to pitch for sale at the stills, but nothing has been found indicating its characteristics or process of manufacture.

CHAPTER V

PREPARATION OF BARRELS

The production of turpentine, contrary to what might be supposed, was not a seasonal industry. As soon as the dipping season was over and the scrape had been collected, usually by December or January, the hands were put to work cutting new boxes or procuring timber for the construction of barrels. They continued these tasks until it was again time to resume "chipping," usually about the first of April.[1]

The barrel timber was obtained from the regular turpentine land and the staves split from the pine logs. The hoops, usually ten to the barrel, were made of split oak or hickory saplings. These rudely constructed barrels were made by negro coopers, and a good cooper was expected to make six or seven

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[1] In instances where a slave had only a small task of boxes to attend, he might also be employed in gathering lightwood and erecting a tar kiln to increase his total output for the year. "The Turpentine Business," Mobile Planter, quoted in Tarboro Press, June 2, 1849.

barrels in a day.[2] The staves were straight, from thirty to thirty-two inches long and three-fourths of an inch thick; the heads seventeen to eighteen inches in diameter, making a simple cylinder of thirty-two gallons capacity. A square hole was cut in one end through which the barrel was filled.[3]

As the liquid would soak through the sap staves, they were carefully separated from the heart staves and only the latter, after being well seasoned, were used in making barrels for dip turpentine. Sap staves were used for making scrape barrels. The cost of these barrels was estimated to be from twenty to thirty-seven cents each.[4] Heading and staves of heart pine sold for about five dollars per thousand, while sap staves were worth only three-fourths as much. Hoop poles, six feet in length, of hickory, white oak or water oak, were

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[2] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 16. Olmsted, Journey in the Slave States, 340. Carolina Cultivator, I (November, 1855), 283. According to the latter article five barrels per day was the task for a cooper. Another stated it to be from four to six a day. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453.

[3] Olmsted, Journey in the Slave States, 340. Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 16. "Turpentine," Carolina Cultivator, I (November, 1855), 283. Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 453.

[4] Macleod, "The Tar and Turpentine Business of North Carolina," Journal of Agriculture, II (July, 1847), 16. Southern Cultivator, IV (November, 1846), 172. "Turpentine," Carolina Cultivator, I (November, 1855), 283.

worth twenty to twenty-five cents per hundred, delivered.[5]

During the forties and fifties when the naval stores industry was rapidly expanding, coopers were in great demand; slaves were frequently trained as such and hired out at higher wages than ordinary hands. When hired by the day they received from $1.50 to $2.00.[6] Of course there were independent white coopers, such as the one who advertised in the Fayetteville North Carolinian in 1849: "Any person who may want a cooper to make turpentine barrels,or do any other sort of coopering for the year 1850, can probably be suited on application to JAMES FRESHWATER, at Lutterloh's cooperage in Fayetteville."[7]

Spirits of turpentine barrels were made with greater care of well seasoned white oak, iron hooped, and thoroughly coated inside with three coats of glue, at an average cost of $1.75 to $2.00 per barrel.[8] Yet, despite this precaution,

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[5] "Turpentine," Carolina Cultivator, I (November, 1855), 283.

[6] Olmsted, Journey in the Slave States, 340. According to a Florida-Georgia writer, a cooper when working by the day or month was required to make five barrels a day, and received twenty-five cents per barrel when all materials were furnished him; if he procured the materials the price was from thirty-one to thirty-seven cents per barrel. "Turpentine," Carolina Cultivator, I (November, 1855), 283. This author also stated that when the coopers procured their own materials for making barrels, every fifth man in a gang of hands making turpentine would be a cooper.

[7] Fayetteville North Carolinian, October 20, 1849. See also an advertisement by P. R. Minos who wanted "to contract with two GOOD COOPERS." Newbernian, January 6, 1852. Wilmington Journal, May 29, 1857.

[8] Olmsted, Journey in the Slave States, 345. C. Krout, "Production of Turpentine in Alabama," DeBow's Review, VII

the waste from leakage and evaporation was great due to the volatile and penetrating nature of the fluid.[9]

In the forties and fifties after the development of large scale distilling operations in North Carolina, spirits of turpentine barrels were often imported from the North. The merchants of Wilmington ran daily advertisements announcing the arrival of five hundred or one thousand spirit barrels.[10] Not infrequently they were second-hand barrels that had already made the trip to New York or Boston or some other port, and had been returned for resale and refilling.[11] At the same time there was an advertisement of "500 NEW SPIRITS TURPENTINE

(December, 1849), 561. "Turpentine," Carolina Cultivator, I (November, 1855), 284. DeBow's Review, XVIII (January, 1855), 62-63.

[9] Olmsted, Journey in the Slave States, 345-346. See also account of sales of 70 barrels of turpentine by Marshall J. Smith & Company for A. & J. R. Grist, April 23, 1860. Grist Collection, Documents, Duke University Library. See also letters from Benjamin Blossom, commission merchant of New York, to D. W. Jordan, October 11, 1846, January 20, 1848, complaining of losses resulting from leakage of the barrels. Jordan Collection, Duke University Library.

[10] Wilmington Daily Journal, September 8, 1856.

[11] Ibid. On December 2, 1858, second hand spirit barrels were selling in Wilmington for $1.75 to $1.80 each. Between January 6, 1859 and December 29, 1859 the price fluctuated between $1.67-1/2 and $1.25. Fayetteville North Carolinian, December 4, 1858, January 8, 1859, December 31, 1859.

BARRELS, (N. C. manufacture,) the best in market."[12]

In view of the large number of barrels needed, and the slow rate of manufacture when the staves and barrels were prepared by hand, there was frequent mention in the newspapers and journals of the invention of barrel making machinery. The use of machines also resulted in smoother staves which enabled barrel makers to use pine as well as oak wood for spirits of turpentine barrels. In 1836 the Washington Whig mentioned a stave cutting machine which was in operation in the town of Washington. It cut a stave in its proper concave and convex shape from a block of wood, and reset itself for cutting the next stave. From four to ten staves per minute could be cut by this machine. After being dressed by another machine they were, said the editor, "without exception, the most beautiful and correctly joined and dressed staves we ever beheld. A barrel made of pine staves was exhibited full of spirits of turpentine,...which had been filled about a week and remained perfectly tight."[13] The editor regarded this invention and its probable benefits to the country, second only to the invention of the cotton gin.

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12 Wilmington Daily Journal, September 8, 1856. See also advertisement of H. Williams in Wilmington Journal, February 2, 1855, informing "Distillers of Turpentine, that he is prepared to furnish NEW SPIRIT BARRELS on fair terms, at his Cooper's Shop in Goldsboro, N. C."

13 Washington Whig, quoted in Tarboro Press, March 5, 1836.

In 1841 the Wilmington Chronicle printed an item from the New York Journal of Commerce describing a machine which dressed staves at the rate of one per second. It was, the Chronicle was pleased to add, the invention of Harvey Law, a Wilmingtonian.[14] In 1849 the editor of the Chronicle again mentioned a machine for making flour barrels which had recently begun operation at Oswego, New York. It could produce four hundred superior quality barrels per day, and he suggested that it might serve equally as well for making turpentine barrels.[15]

In that same year an article appeared in the Fayetteville North Carolinian (July 28, 1849) describing a trip to Wilmington, during which the writer visited the steam saw mill of a Mr. Peters. In addition to the operation of the saw mill, Peters had invented a machine for cutting staves and heading, and had in operation a factory for making barrels completely by machinery. The plant occupied a two story building and was operated by steam. The staves were cut by means of a revolving cylinder about eighteen inches in diameter and about as long as an ordinary stave. The cylinder was hollow and had saw teeth on one end. It revolved in a horizontal manner and when a piece of wood was placed against the saw teeth cut out a

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[14] New York Journal of Commerce, quoted in Wilmington Chronicle, January 20, 1841.

[15] Ibid., April 4, 1849.

stave, the stave being on the inside of the cylinder after it had passed through the block of wood. This gave the stave the proper shape required for the rotundity of the barrel. Another machine provided the staves with the proper bevel on each edge so that they would form a close seam when assembled, as well as the proper slope at each end to allow the heads of the barrel to be smaller than the middle. A third machine cut the heads of the barrels from one or more pieces of wood. After the barrel was assembled, except for the heading, and fastened with an iron hoop at each end, it was placed in a machine in which it revolved between two blades which smoothed the surface both inside and out, cut the groove in which the head fitted, and bevelled the rim. "So rapid is all this done, that Mr. Peters tells us five hands can turn out from 250 to 300 barrels for spirits turpentine in a day. And these are the most particular sort of barrels to make. At this rate what will become of the coopering business?"[16]

The writer was unduly concerned about this development, however, for so great was the demand in the fifties that coopers continued to be used, especially for making barrels for crude and scrape turpentine, and for rosin. In March 1850, T. S. Lutterloh of Fayetteville, advertised in the Fayetteville North Carolinian for "200,000 White Oak barrel STAVES, and

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16 Fayetteville North Carolinian, July 28, 1849.

50,000 oak or ashe Heading, deliverable at our Cooper Shop, or on board a boat at any point between this place and Wilmington. The highest market price will be paid."[17]

In 1856 a subscriber to the Arator, an agricultural journal published in Raleigh, North Carolina, inquired as to conditions in regard to exhibiting articles at the North Carolina State Fair.

> My object in making these inquiries at this time is, that I purpose at the next State Fair to exhibit a barrel of Spirits of Turpentine made of the pine wood, to satisfy every one who feels an interest in the matter, that Pine Spirit Barrels can be made to hold the Spirits of Turpentine just as well as the Oak;.... I have tried it, and sold a number in New York and Wilmington last fall and winter and during this spring, at the best market prices. 18

The Arator, in commenting on this, said it was certainly an important and valuable discovery and called it to the attention of the turpentine distillers of the state.

In view of the large number of barrels used by the distillers, many of which were made at home, there was also a large demand for glue. While sometimes made at home from the hides of cattle, it was probably more often purchased. Certainly during the 1850's the newspapers carried frequent advertisements

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[17] Ibid., March 23, 1850. A similar advertisement for the same amount, by Lutterloh, appeared in the North Carolinian the next year, March 1, 1851.

[18] Arator, II (July, 1856), 497.

offering thirty, fifty or an unspecified number of barrels of glue for sale.[19]

In addition to this it would seem that some glue manufacturers sold directly to the distillers. Olmsted mentioned that while going down on a steamer from Fayetteville to Wilmington, there was among the passengers a glue manufacturer from Baltimore soliciting orders from the turpentine distillers.[20] Even when barrels were purchased they were in all probability re-washed inside with glue before being filled with spirits of turpentine. Large glue kettles were a common feature at the larger stills.

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[19] Wilmington Journal, July 30, 1847. Wilmington Chronicle, June 13, 1849, June 19, 1850.

[20] Olmsted, Journey in the Slave States, 371-372.

CHAPTER VI

RIVER TRANSPORTATION

Naval stores, due to their great weight and bulk, would not yield a profit to the producers when long distances and excessive transportation rates stood between them and their markets. Throughout the entire period, rivers played an important part in the growth and development of the industry.

A glance at the map on page 105 will show that North Carolina was amply supplied with rivers. Beginning at the top of the state and working south the rivers were the Pasquotank, Little, Perquimans, Chowan, Roanoke, Tar, Neuse, and the Cape Fear, with its two branches, the north east and the north west. In addition, there were various inlets and bays from which a coasting trade in naval stores and provisions was carried on with the larger towns of Newbern, Washington and Wilmington.

Before river steamers came into general use in the 1830's, most of the traffic was carried on by means of rafts and pole boats,[1] and these continued to be used until 1845 and probably

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[1]North Carolina Board of Internal Improvements, Annual Report, 1828 (Raleigh, N. C., 1828), 17-18.

until 1850. As the river was frequently too low for steamboat navigation during the summer, most of the naval stores had to wait until winter rains before they could be brought to market. For that reason the marketing season for naval stores was generally between October and March.

The influence of the winter rains and freshets on the commerce of the Cape Fear and Wilmington, as well as evidence that most of the produce prior to 1845 was brought down on rafts, is shown by the Wilmington market news of December 18, 1845:

> Rain having fallen in large quantities during the past week, the rivers have been up, and produce has consequently come down more abundantly than at any period during the last twelve months. It is estimated by the Inspectors, that nearly 40,000 barrels of Naval Stores have been brought to town since the present freshet commenced. [2]

Even as late as 1850, the Wilmington market news of January 23, reported that "It is estimated by the inspectors that since the late rise in the river commenced, say within a fortnight, nearly 50,000 bbls. of Turpentine have come in, and all has been sold;...." [3]

During the fifties, however, the production and distillation of turpentine began to spread inland, and by 1855 only small quantities of crude turpentine were brought in on rafts

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[2] Wilmington Journal, December 19, 1845.

[3] Wilmington Chronicle, January 23, 1850.

when freshets occurred on the rivers.[4] At the same time, light draft steamers partially overcame the difficulties of low water in the summer months, and the regular service permitted a year-round marketing of naval stores. These facts, and the greater value of spirits of turpentine, induced producers to rely more on steamers and their tow boats for getting their naval stores to market.[5]

In the fifties, when Fayetteville, through its network of plank roads and the improvements on the upper Cape Fear River, became the inland headquarters of the industry, there was a constant trade between that town and Wilmington. While this perhaps accounted for the bulk of the trade, large quantities of naval stores were shipped from intermediate landings all along the river. Whitehall Landing in Bladen county, through which the Cape Fear ran, was one of the better known of the intermediate landings.[6] Some places became more or less public landings, where the steamers made regular stops. Frequently the landing was a place, as was Robeson's Landing in Bladen county, where a turpentine distillery and mercantile

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[4] Wilmington Journal, August 31, 1855.

[5] In the 1850's it also became common to pay a slightly higher price for turpentine brought by railroad or boats, than "for the rafted or river article," although the additional price was not sufficient to pay the total cost of the freight. Wilmington Journal, October 17, 1850, quoted in Tarboro Press, October 26, 1850.

[6] Wilmington Journal, November 2, 1855.

establishment were located and operated in conjunction with each other.[7] Perhaps the best known landing on the Tar River was Sparta, between Greenville and Tarboro, where Joab P. Pitt operated several turpentine stills.[8]

As the naval stores industry spread inland, especially in the Cape Fear region, river steamers came into more prominence. Some of these were built at the North and brought south for the river trade. Others were built at Washington, Newbern, Wilmington, and Fayetteville and designed for the special trade in which they were to engage. A surprisingly large number of these vessels were built at Fayetteville, several of them by Joshua Toomer, one of the most important local builders of steamboats. Since a light draft was a prime consideration in most of the river steamers, the builders frequently experimented with various types.[9]

Most of the steamers which operated on the Cape Fear measured from one hundred to one hundred and thirty feet in length, fifteen to twenty-five feet in width, with a depth of hold from three to nine feet, and they drew from one to two feet of water when light. The largest of these was perhaps

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[7] Wilmington Journal, August 15, 1856. See also ibid., November 2, 1855, August 25, 1854.

[8] Tarboro Press, October 5, December 21, 1844.

[9] Wilmington Journal, November 21, 1851.

the Fayetteville, operated by the Henrietta Steamboat Company. It was one hundred and thirty feet long, twenty-six feet wide, had a nine foot depth of hold, and could carry four hundred tons of freight.[10] Among the smallest of the freighters on the Cape Fear was the Enterprise, of forty-four tons burthen, drawing only seventeen inches of water when loaded.[11]

Nearly all of these vessels were designed for both freight and passenger traffic, but in the fifties there were several steamers, usually one to each Line, designed especially for passenger traffic. These, such as the Southerner, operated by the Henrietta Company, and the Chatham operated by the Cape Fear Company, were usually smaller, with less depth of hold. They were therefore of lighter draft and faster.[12]

Although the steamers themselves could carry from three hundred to five hundred barrels of naval stores, according to their size, they served chiefly as tow boats pulling large flats or lighters.[13] The lighters, of course, varied in size

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[10] Fayetteville Observer, quoted in Wilmington Chronicle, February 16, 1842.

[11] Wilmington Journal, January 14, 1848.

[12] Ibid., April 23, 1852.

[13] A steamer one hundred feet long with sixteen foot beam, five and a half foot depth of hold was estimated by John Banks, a Cape Fear River boat captain, to carry from 300 to 400 barrels of rosin. John Banks to Douglas & Brother, November 14, 1849. Douglas & Brother Collection, Duke University Library. See also an account of a freshet on the Cape Fear in March 1851, when Captain Benjamin Rush of the steamer Evergreen took

and capacity, and the number of barrels a lighter carried was determined by the amount of water in the river as well as by its size. The tow boats employed by the Brothers Company carried from three hundred to four hundred barrels of naval stores.[14] When there was sufficient water in the rivers, some tow boats or lighters could carry as much as one thousand to eleven hundred barrels.[15]

One of the principal builders and operators of steamboats on the Cape Fear and Pee Dee Rivers was Doyle O'Hanlon, of Wilmington. His first steamer, the John Walker, of two hundred and twenty tons burthen was launched at Wilmington in November, 1831. The Walker plied between Wilmington and Fayetteville during the winter season; during the summer, when the river above Wilmington was too low for navigation, and when prevailing winds prevented vessels from sailing from the port, it was employed in towing vessels to sea.[16]

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aboard 400 barrels of rosin lying on the banks to prevent their being swept away by the current. Fayetteville North Carolinian, March 15, 1851.

[14] The Wilmington Journal, October 15, 1852, gave an account of a storm in which several flats were sunk at the wharves, among them one belonging to the Brothers Company with 300 to 400 barrels of spirits of turpentine on board.

[15] Wilmington Journal, March 3, 1854.

[16] Cape Fear Recorder, November 23, 1831. Wilmington is situated at the confluence of the northeast and northwest branches of the Cape Fear, approximately thirty-five miles from the ocean.

In 1835 O'Hanlon built the Duncan McRae, to ply between Georgetown and Cheraw, South Carolina, on the Pee Dee River,[17] and by 1844 had acquired two additional boats, the Cotton Plant, which was chiefly a passenger boat, and the William B. Meares. The latter vessel, likewise originally designed for the South Carolina rivers, was still running on the Cape Fear in 1846.[18]

Another of the principal operators of steamboats on the Cape Fear during the forties and fifties was the Henrietta Steamboat Company. Its first boat, the Henrietta, with tow boats, was already operating on the Cape Fear when the Company was incorporated in 1828,[19] and continued to operate during the thirties.[20] In 1842, the Company added the steamer Fayetteville, previously mentioned, to its line; the addition of the Evergreen in 1846 gave the Henrietta Company a total of three steamers and six lighters. The Evergreen was an exceptionally light draft vessel designed to draw with wood and water on

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[17] People's Press and Wilmington Advertiser, July 29, November 13, 1835.

[18] Wilmington Chronicle, November 30, 1842, January 24, 1844, March 11, 1846.

[19] N. C., Laws, 1827-28, ch. 52. This company was originally composed of Benjamin Rush, Horatio G. Nelson, and Doyle O'Hanlon. O'Hanlon soon withdrew and began to operate for himself. In 1842, the company consisted of Rush, John H. Hall and Constant Johnson. Fayetteville Observer, quoted in Wilmington Chronicle, February 16, 1842. In 1853 the line changed hands but continued to operate throughout the fifties. Wilmington Journal, February 18, 1853.

[20] Cape Fear Recorder, October 26, 1831.

board, only eighteen inches. The editor of the Chronicle commented:

> This light draft boat will add materially to the facilities of transportation on the Cape Fear, and it is to be hoped that hereafter the merchants of the interior will not be subjected to the delays and expenses which have heretofore been necessarily incident to a low stage of the river. [21]

By 1846 there were five steamers, each with its own supply of lighters (usually two for each steamer), operating on the Cape Fear.[22] As turpentine production increased during the forties other steamboat companies entered the freighting business.[23] The Merchants Steam Boat Company, incorporated in 1847, was chiefly promoted by Thomas S. Lutterloh, who also operated a store and forwarding agency, turpentine distillery, cooper shop and drayage service in Fayetteville. Among the vessels operated by this company were the Rowan, the Magnolia, and the Fanny Lutterloh.[24]

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[21] Wilmington Chronicle, March 11, 1846. In 1849 the Fayetteville Observer noted a quick trip from Fayetteville to Wilmington and return made by the Evergreen, under Captain Benjamin Rush. The Evergreen left Fayetteville on Thursday at 12:00 M., discharged freight in Wilmington and took on cargo, and with boat Diligence in tow (cargo of ice) arrived at her wharf in Fayetteville on Saturday at 5:30 P.M. Fayetteville Observer, quoted in Wilmington Chronicle, May 16, 1849.

[22] Wilmington Chronicle, March 11, 1846.

[23] N. C., Laws, 1846-47, ch. 124.

[24] Wilmington Journal, October 9, 1846, June 8, 1855.

With the concentration of the naval stores industry in the Cape Fear region in the early fifties other steamboat companies entered the trade. The Fayetteville North Carolinian in commenting upon two new vessels which were being built at Fayetteville in 1850, also noted that "extensive warehouses are being erected at the wharves for the reception of transportation merchandise."[25]

In 1851 the Cape Fear Steamboat Company attempted to establish a regular freight and passenger line between Fayetteville and Wilmington. Its passenger boat, the steamer Chatham, was built by the firm of Dibble and Brother of Newbern expressly for this purpose.[26] The schedule of the Chatham was arranged to afford passenger connections with the Wilmington and Weldon Railroad. The freight steamer, Governor Graham, with the tow boats belonging to the Line, ran in connection with the Chatham, making one or more trips per week as circumstances required.[27]

The same year, 1851, saw the beginning of another freighting company on the Cape Fear, known as the Brother's Steamboat Company or Bank's Line. The owners were John and

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25 Fayetteville North Carolinian, quoted in Wilmington Chronicle, August 28, 1850.

26 Wilmington Chronicle, July 10, 1850. Fayetteville North Carolinian, September 21, 1850.

27 Wilmington Chronicle, February 19, 1851.

David Banks of Wilmington, and James Banks of Fayetteville. Their first boat, the Brothers, with its tow boats, Stevenson and David Lewis, arrived at Fayetteville in January 1851. The Brothers was the smallest (eighty-six foot keel) and fastest boat on the river at that time, drawing only seventeen inches of water, and was commanded by John Banks.[28] This company was especially interested in the naval stores freighting business,[29] and about the middle of 1852, after having employed the Brothers for eighteen months in hauling naval stores from the various landings on the Cape Fear to Wilmington, they added another vessel to their line, the steamer Douglass. Designed to carry ninety-seven tons, it drew, when empty, about twenty inches of water, but with one hundred and fifty barrels of turpentine on board which brought it to even keel, the Douglass drew about two feet of water.[30]

After the appearance of their second vessel the Banks brothers advertised in the Fayetteville North Carolinian that the Company was "prepared with Steamer 'Brothers' and 'Douglass,' and a compliment of Tow Boats to carry with dispatch all Freights shipped by them, between Fayetteville and Wilmington,

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[28] Fayetteville North Carolinian, January 18, May 17, 1851.

[29] See advertisement in Fayetteville North Carolinian, May 17, 1851.

[30] Wilmington Journal, June 11, 1852, and August 20, 1852, the latter citing the Fayetteville Observer.

or to any intermediate landings on the River."[31]

As business grew, the Banks added other vessels to their line, in 1854, the James R. Grist, named in honor of one of the largest producers of naval stores in the Cape Fear region,[32] and in 1855 the Scotish Chief.[33]

In addition to the boats operated by the steamboat companies there were other steamers engaged in the trade owned and operated by individuals, usually the captain. One of these was the Utility, a light draft vessel built at Wilmington and designed to navigate the river at its lowest stages. It was built and commanded by its owner, Captain Kirkpatrick.[34]

By means of these light draft steamers, the merchants were able to surmount the difficulty of low water as noted by the editor of the Fayetteville North Carolinian in the summer of

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31 Fayetteville North Carolinian, October 16, 1852.

32 Wilmington Journal, March 10. 1854. To what extent James R. Grist was interested in this company is not known. He had apparently, however, endorsed their notes at the bank, and they sought his influence in securing the naval stores freighting business of the commission house of Petteway & Pritchett, who handled Grist's business in Wilmington. In 1856, when the Banks brothers decided to sell two of their boats in order to pay off their debts, they sought Grist's aid in negotiating the sale and the steamer James R. Grist was purchased by Petteway & Pritchett. See letters, J. S. Banks to James R. Grist, August 15, 1854; and James Banks to James R. Grist, June 10 (?), 1856. Grist Collection, Letters, Duke University Library. James Banks was a lawyer by profession and handled James R. Grist's legal affairs at Fayetteville.

33 Wilmington Journal, June 2, 1855.

34 Wilmington Chronicle, December 22, 1844.

1850. "OUR RIVER is tolerably low at present, not over two feet of water, but we have three light draft steamers running, and goods for Fayetteville and up country are arriving as fast as those steamers with numerous flats can bring them."[35]

By the end of 1852 there were nine steamers and twenty tow boats plying between Fayetteville and Wilmington, involving a capital of $110,000 and employing about one hundred and eighty hands.[36] By the middle of 1854 the number of steamers had been increased to twelve or thirteen,[37] and others were subsequently added.

The rates of freight on the river seem to have been standardized. In December, 1852, the four steamboat companies published a notice stating their rates and conditions of freighting from Fayetteville to Wilmington. The rates for naval stores per barrel were: for spirits of turpentine, fifty cents; crude turpentine, thirty cents; rosin, twenty-five cents; and for empty spirit barrels up the river, twenty-five cents. The companies further stated that

> The freight on all Naval Stores twould be payable at Wilmington on delivery, (unless a bargain to the contrary.)

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35 Fayetteville North Carolinian, September 21, 1850.

36 Fayetteville Observer, December 7, 1852, quoted in Fayetteville North Carolinian, December 11, 1852; Wilmington Herald, December 29, 1852.

37 Wilmington Journal, April 21, 1854.

Spirits Turpentine will be stored free of charge at the River, when there is no boat to take it off. Rosin and Turpentine will be received on the hill or on the wharves free of all charge to the shippers, except freight. 38

By the middle eighteen fifties naval stores were brought to Wilmington by steamers and tow boats from as far as twenty-five miles above Fayetteville. This was the result of the improvements made in the upper Cape Fear and Deep Rivers by the Cape Fear and Deep River Navigation Company. The project was begun in the early fifties as one among many improvements in transportation which the state authorized. The proposed work was the construction of a series of dams and locks on the upper Cape Fear and Deep Rivers which would permit steam navigation as far up as Haywood and Lockville in Chatham county. The object was to provide cheap transportation to a region heretofore cut off from the coast and to attract the trade to Wilmington. In addition it was to provide a cheap means of transportation so that the coal beds in Chatham county could be profitably mined. Since the rivers passed through the pine region it also permitted the development of the naval stores industry farther inland.[39]

The work was beset by various difficulties, including the raising of funds, the high cost of labor, and in November,

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[38] Wilmington Herald, January 26, 1853.

[39] Wilmington Journal, January 21, 1853.

1852, a part of the lock at Jones' Falls, eighteen miles above Fayetteville, was swept away by a freshet.[40] Finally in February 1854 the Wilmington Herald hailed the arrival of the first steamer to come down from Deep River:

> It is with pleasure that we notice the arrival here,...of the Steamer Jno. H. Haughton, Capt. Lamons, the pioneer steamer of the Deep River Improvement. The Haughton came down from Averysboro, some 25 miles above Fayetteville, with 2 lighters in tow, and a large cargo of 2,200 bbls. rosin. She is a snug little boat of the capacity of 275 bbls., and will ply regularly for the present, between this port and Averysboro. There are some 20,000 bbls. of naval stores in the last named and at other places, now awaiting shipment. [41]

The Haughton continued to operate on this route as revealed by the marine list of the Wilmington Journal, March 6, 1857, which listed it as having arrived from Lockville with three lighters in tow, laden with cotton, flour and naval stores.[42]

Since the river was considerably smaller above Fayetteville, the small steamer, Brothers, of the Brothers Steamboat Company was also admirably adapted to the navigation of the upper stretches. At Fayetteville, its cargo was transferred to the James R. Grist, which brought it to Wilmington. On their

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[40] Wilmington Journal, December 3, 1852.

[41] Wilmington Herald, quoted in Wilmington Journal, March 19, 1854.

[42] See also an article signed "Deep River" in the Fayetteville Observer, quoted in Wilmington Journal, February 20, 1857, which gives more detailed information on the navigation of the upper Cape Fear and Deep rivers by steamers and flat boats.

first trip in July, 1856, the Brothers and the Grist brought down a cargo of flour, wool, spirits of turpentine and rosin. The Brothers made weekly trips on the upper Cape Fear thereafter, while the Grist made the regular run between Wilmington and Fayetteville.[43]

The northern tier of rivers from the Pasquotank to the Neuse were not suitable for steam navigation to the same extent as the Cape Fear. These rivers, especially the Pasquotank, Little, Perquimans and Chowan which emptied directly into broad Albemarle Sound were shallow and sluggish, and were navigated in the earlier days, according to Hugh Williamson, by small boats that carried from one hundred and fifty to two hundred barrels.[44] As an example of the vessels employed, an advertisement in the Carolina Centinel of 1818 offered for sale a small sloop of one hundred and seventy barrels capacity; while a notice in the same paper in 1822 sought information about "Captain GEORGE JOHNSON who commanded the Schr. Charles, a small vessel of 10 to 30 tons in the waters of the North Counties of North Carolina in the spring of 1821...."[45]

Efforts were made at various times to remove obstructions

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[43] Wilmington Journal, July 25, 1856.

[44] Williamson, History of North Carolina, 217.

[45] Newbern Carolina Centinel, November 21, 1818; August 17, 1822.

and improve navigation, especially on the Roanoke, Tar and Neuse rivers, but before much had been accomplished plank roads and railroads rendered river improvement less urgent. Until that time, the producers in that region were largely dependent upon carts, wagons and flatboats for transporting their goods to market.

The flats, of course, varied in size, depending upon their motive power. Those towed by steamers on the Neuse River carried about six hundred barrels.[46] Flats which were floated down on the current or poled up the streams were smaller, carrying from three hundred to four hundred barrels. They were however, permanent boats, and not to be confused with temporary rafts which were often used for floating naval stores down the rivers.[47]

In 1842 John H. Brooks of Greenville, North Carolina, notified the merchants and farmers of Edgecombe county that he had "finished a new and complete FLAT, and intends going master of her himself, and hopes by punctual and strict attention to

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[46] Charles Emerson & Company, Newbern Directory, 1880-1881 (Raleigh, N. C., 1880).

[47] A flat measuring 100 feet by 17 feet, a fairly standard size and designed to carry from 300 to 400 barrels, was advertised for sale while still on the stocks in 1855. Wilmington Journal, September 21, 1855. Another which would carry 400 barrels was offered for sale by P. A. Atkinson in Tarboro Southerner, July 24, 1852.

the business to share a liberal patronage."[48]

There were, however, various attempts to establish regular steamboat navigation on the Neuse and Tar rivers. In 1836 the steamer E. D. Macnair, built at Washington and owned by the firm of Tannahill and Lavender, who were also engaged in distilling turpentine, was placed on the Tar River to ply between Washington and Tarboro. The Macnair, a small vessel eighty-five feet long, had in addition to her own capacity a complement of tow boats with which to engage in the freight business on the Tar River.[49] The following year, however, the vessel was sold and placed in the Wilmington trade.[50]

The principal builder and operator of steamboats in the northern section of the state was the firm of Dibble and Brother of Newbern. During the forties they operated the steamer Wayne on the Neuse River,[51] and in February 1848 placed a steamer, the Governor Graham, on the Tar River to ply between Washington and Tarboro.[52]

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[48] Tarboro Press, February 19, 1842.

[49] Washington Whig, quoted in Tarboro Press, January 30, 1836.

[50] Wilmington Advertiser, April 14, 1837.

[51] Tarboro Press, May 1, 8, 1847, the latter date citing the Washington Whig.

[52] Raleigh Register, quoted in Tarboro Press, November 27, 1847; Newbernian, quoted in Tarboro Press, February 5, 1848; Tarboro Press, February 26, 1848.

A few weeks later, however, the Wayne was accidentally destroyed by fire. It had, the Newbernian stated,

> just returned from a trip to Smithfield, and had on board among other freight, a number of casks of spirits of turpentine. In passing between a vessel and one of the wharves, one of the casks struck against the vessel and was stove. The spirits ran upon the deck of the steamboat and over her side, and at the moment when the cask was stove, one of the hands was in the act of throwing overboard the fire, which caught the spirits floating on the surface of the water, and in an instant communicated to the boat. The flames spread with great rapidity, and as the surest means of securing the passengers on board, the boat was run along side the wharf. The alarm was instantly given, and every exertion made to extinguish the fire, but all to little purpose, until the boat and most of her contents were consumed. 53

As a result of this accident Dibble and Brother, who had a thriving business involving a considerable number of flats and hands on Neuse River, were forced to take the Governor Graham from Tar River and place on the Neuse.[54]

In 1849 the firm of John Myers & Son, naval stores commission merchants of Washington, placed a steamboat on Tar River to ply between Washington and Tarboro. On her first trip up the river, the Amidas ran into such obstructions that she was unable to go above Greenville.[55] Myers & Son, with the help

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53 Newbernian, quoted in Tarboro Press, March 11, 1848.

54 Tarboro Press, April 1, 1848.

55 Washington Whig, quoted in Tarboro Press, August 25, September 1, 1849. See also John Myers & Son to Douglas & Brother, March 3, June 23, May 12, April 23, 1849; and B. M. Watson to Douglas & Brother, September 2, 1849. Douglas & Brother Collection, Duke University Library.

a fine young [illegible] Democrat. She Negro was accidentally
[illegible] by them. By land, the Underground method.

[illegible] or cause of a shortage of transmitters. In
[illegible] overpowered one plane, which caught fire [illegible]
on the surface of the water, and in an instant crumpled
[illegible] moans of wounded flew pandemonium on board, who
[illegible] plane ride around.

[illegible] result of this accident Dibble and Thornburg, who had
[illegible] involving a considerable number of fluste-
[illegible] river and plane on the Nenne.

[illegible] Washington and Carboro. On June first I will
[illegible] to move Greenville. Myers & Son, with the help

of some other merchants in Washington and the people of Pitt county, attempted to remove the obstructions from the river, which were chiefly sunken logs. The Amidas continued making trips to Tarboro whenever the depth of water would permit, chiefly transporting naval stores, until December 1852 when it was placed on the Greenville-Washington run.[56]

In addition to the Dibble's boat, the Wayne, the Neuse River Navigation Company operated two steamers upon the Neuse, the Johnson and the Rough and Ready. The Johnson was too heavy for low water, but with the Rough and Ready, which could carry from one hundred and fifty to two hundred barrels of turpentine drawing only twelve to sixteen inches of water, the proprietors hoped to maintain regular service as far up the Neuse as Smithfield.[57]

The building of the Wilmington and Weldon Railroad to some extent relieved the people on the headwaters of the Tar and Neuse rivers of their problem of how to get their produce to market.[58] But for the people between Tarboro and Washington

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[56] Tarboro Press, October 13, 1849. Tarboro Southerner, December 4, 1852.

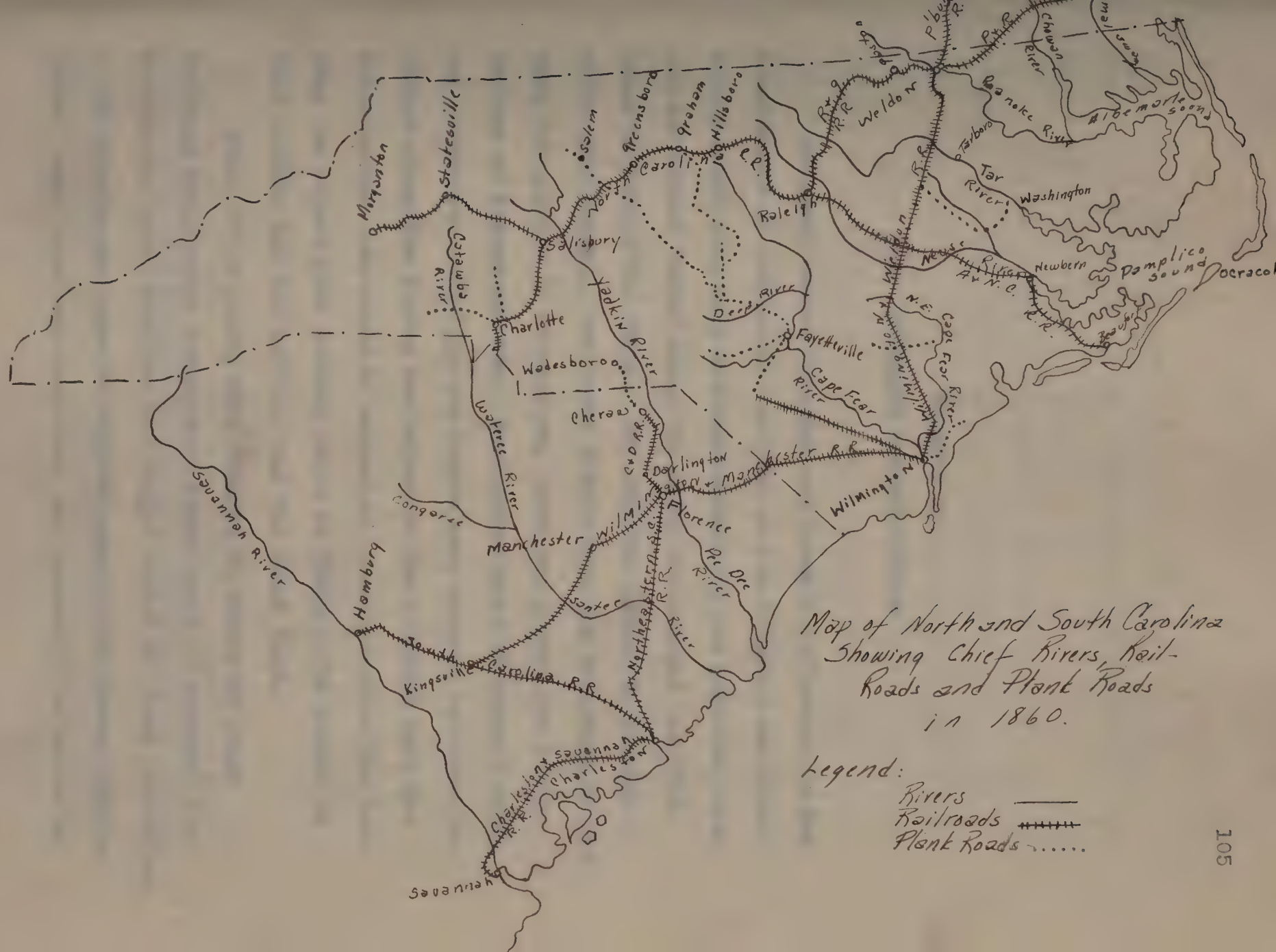
[57] Newbern Republican, January 5, 1848.

[58] Tarboro Press, June 10, 1846. The editor of the Press did not cease advocating the improvement of the river. In November 1847, after an editorial in favor of improvement in navigation, the editor of the Newbernian also wrote an editorial to the promoters of Tar River improvement, urging them not to

the difficulties and inconveniences of poor overland transportation and irregular navigation remained. In the 1850's they turned their attention to the building of plank roads.

In addition to the river steamers, there were a number of small schooners and coastal vessels which brought naval stores from small inlets and the mouths of creeks along the coast. The Marine Intelligence column in the Wilmington papers recorded daily the arrival of vessels from Smithville, thirty miles below Wilmington, from Lockwood's Folly and Shallotte in Brunswick county, from Richlands and Tar Landing in Onslow county, from New River, at Jacksonville, North Carolina, from Georgetown and Little River, South Carolina. Since Wilmington was the chief market for naval stores, the products often commanded a better price and quicker sale there than in ports where there was no established market.

"dream over it any longer as we have been doing over (the) Neuse, until our trade has been well nigh used up between Wilmington and Petersburg." Newbernian, quoted in Tarboro Press, November 20, 1847. For a similar statement concerning the trade of Tarboro, see Tarboro Southerner, February 7, 1852.



Map of North and South Carolina Showing Chief Rivers, Rail-Roads and Plank Roads in 1860.

Legend:

Rivers ——

Railroads ++++++

Plank Roads .....

CHAPTER VII

OVERLAND TRANSPORTATION

The naval stores industry was greatly influenced by the development of railroads. As long as the industry was relatively small with only moderate demand for the products there was sufficient timber along the water courses and near the coast to supply the needs. But with the growth in demand, which came about in the early 1840's from the discovery of new uses for spirits of turpentine, there was a need for better systems of transportation. The rivers were, of course, used, and steamboats with lighters became more common; but when the timber along the rivers was exhausted the industry must decline unless some means of economical transportation for tapping the inland pine forests could be found. The answer to this problem was the railroad and the plank road.

While other states were engaged in extensive canal building enterprises and various other types of internal improvements, North Carolina had lagged behind in these activities. A few efforts were made to improve some of the rivers, and the Dismal Swamp Canal was completed, but generally the state had

not countenanced such enterprises with financial assistance;[1] and there were no cities of sufficient size within its borders to sponsor such expensive developments.

In 1833, however, Wilmington, then a city of some three thousand to thirty-five hundred inhabitants, a large part of whom were slaves, threw off the lethargy which characterized most of North Carolina and moved by the enterprise and energy of Edward B. Dudley, W. B. Meares and P. K. Dickinson, began to agitate for a railroad. Strongly supported by the people of Wilmington, they received a charter from the state in 1835 and construction was begun the following year. Unable to complete the enterprise themselves, the company appealed to the state for aid and received a $500,000 subscription to the stock of the road. Completed in 1840, the Wilmington and Weldon Railroad was reported to be the longest railroad in the world at that time.[2] Its 161 miles stretched north and south through the heart of the longleaf pine forests from Wilmington to Weldon on the Roanoke River. Completed also just in time for the boom which came in the naval stores

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[1] Down to 1833 the state had spent a total of $295,146.98 on internal improvements of all types. Cecil K. Brown, A State Movement in Railroad Development the Story of North Carolina's First Effort to Establish an East and West Trunk Line Railroad (Chapel Hill, N. C. 1928), 13.

[2] Ibid., 19-36. James Sprunt, Chronicles of the Cape Fear River, 1660-1916, second edition (Raleigh, N. C., 1916), 149-154.

industry, it opened up a vast territory in which that raw material stood virtually untouched, and offered to the farmers of that area a quick, safe, convenient and reasonably inexpensive means of getting their goods to market.

On May 4, 1838, the editor of the Wilmington Advertiser editorialized on the subject of "OUR RAILROAD":

> We always recur to this subject with pleasure, no less than with a sense of duty, because we believe its progress is regarded with interest elsewhere, and certainly it is closely identified with the well being of the State, and the prosperity of this town and the adjacent parts. The work goes on with vigor, and rapidity.... A good deal of produce has already been grought to this market by the way of the railroad, such as Turpentine, Tar, Bacon, Corn, &c. and by another business season, the receipts through that channel will no doubt be immense.

In November the editor again recurred to the progress of the railroad and stated that "Cotton, Tar, Turpentine, Bacon and goods are daily transported on its trains; and we have been told that but two rafts of turpentine have been brought to this market since the road was ready for its carriage...and all this is daily taking place, before the road is fairly in operation--...."[3] As early as June 9, 1841, the Wilmington Chronicle in its review of the market remarked that "The larger portions of these articles [naval stores] have of late come in on the

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[3] Wilmington Advertiser, November 16, 1838.

Rail Road, the North East river being low."[4]

In the spring of 1843 the shops of the Wilmington and Weldon Railroad at Wilmington caught fire and destroyed considerable equipment, including several locomotives. This resulted in a serious lack of motive power on the road, particularly in regard to heavy freight, which was not supplied until December of that year. The editor of the Chronicle noted that "An engine capable of hauling a train of 6 or 700 bbls. turpentine, weighing alone from 100 to 120 tons, has just been put upon the Road, and another which it is supposed will be able to take along a train of a thousand bbls. ...is expected shortly."[5]

In 1852 the editor of the Tarboro Southerner, always an ardent champion of the improvement of navigation on Tar River, reluctantly admitted that most of the trade of that section now went by the Railroad:

> The river is not yet in boating order, and there is but little prospect that it will be soon. Already most of the farmers living within a reasonable distance, send by the Railroad their produce to Wilmington or Petersburg, and of course do a considerable portion of their trading in those towns, which would be done in Tarboro did they send their produce by river direct to New York. 6

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[4] Similar statements were made by the Wilmington Chronicle, November 3, 1841 and June 1, 1842.

[5] Ibid., December 6, 1843.

[6] Tarboro Southerner, February 7, 1852.

In 1856 a farmer living along the route of the railroad wrote to the editor of the Wilmington Journal complaining of the fact that the railroad was chiefly a turpentine road. Frequently, he said, bales of cotton would lay by the road for two or three weeks before being taken off, and no one ever attempted sending fruits and vegetables to market unless able to go along with them personally.[7]

The following table indicates that naval stores was one of the important articles of freight transported on the Wilmington and Weldon Railroad:[8]

AMOUNT OF NAVAL STORES RECEIVED AT WILMINGTON AND AT WELDON FROM 1854 TO 1860

Year	Rosin, bbls.	Turpentine, bbls.	Tar, bbls.
1854	113,888	13,469	6,944
1855	100,244	18,721	8,798
1856	73,430	19,005	11,028
1857	87,676	12,875	4,491
1858	93,639	19,712	2,173
1859	76,222	24,204	10,039
1860	63,573	18,056	7,732

Having successfully completed their first venture in

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[7] Wilmington Journal, September 19, 1856. One reason for this may have been that turpentine was more likely to suffer damage through evaporation and leakage by exposure to the sun and weather than was cotton.

[8] Howard D. Dozier, History of the Atlantic Coast Line Rail Road (New York, 1920), appendix, 165, citing Report of the Wilmington and Weldon Railroad Company, November 8, 1860. What is listed as turpentine in the table was no doubt spirits of turpentine.

railroad building, the Wilmingtonians in 1846 launched another road through the pine barren regions south and west of the Cape Fear. This was officially named the Wilmington and Manchester Railroad since its terminus was at the village of Manchester in South Carolina. Here it tapped the Camden and Columbia branches of the South Carolina Railroad.

The chief promoters were merchants of Wilmington, farmers of the east midlands of South Carolina, a few turpentine producers in the pine lands between the two; and, of course, the editor of the Wilmington Journal. In December, 1847, after a visit to Columbus county through which the road was to run, he editorialized on the subject of "The Rail Road in Columbus."

> On our way there, we traversed a considerable portion of the country over which the projected railroad will pass, and we could not conceive of a country more favorable, in every respect, for the construction of a Road. As level, almost, as a perfect plain, with a profusion of the finest timber we have ever laid our eyes upon.-- When the Road is built, those immense bodies of fine Turpentine lands will come into play, and consequently they will rise unprecedentedly in value.... We conversed with a great many gentlemen, and all of them are anxious for the success of the Road. No wonder that they should. It will be the making of Columbus County. 9

Construction of the road, which was to be 158 miles long, was begun in 1850. It was "pushed...rapidly to completion and

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9 Wilmington Journal, February 12, 1847. See also Exhibit of the Condition and Prospects of the Wilmington & Manchester Railroad Company (New York, 1851), 6.

at once began to enjoy a moderate traffic in passengers, cotton, farm supplies, and especially in naval stores."[10] On February 18, 1853, the editor of the Wilmington Journal commented: "The first lot of Naval Stores by the Manchester Railroad arrived here on Saturday last, to Wm. A. Gwyer. We may hereafter expect a largely increasing supply from that quarter."

The report of the Manchester Company for the year 1855[11] showed an increase in receipts of ten per cent over the preceding year, and a total of $400,000 received. This increase was largely local business, despite the fact that "the depressed condition of every branch of business connected with the production of the forest, coupled with the high prices of labor and provisions, prevented the extension of the production of Naval Stores, and materially affected the way travel and freight."[12] The report, in reviewing the quantities of naval stores and other articles of produce transported over the road, stated that the statistics were

interesting in exhibiting the productions of the pine forest and their great value as articles of transportation. That portion of the forest extending from Lake Waccamaw to Fair

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[10] U. B. Phillips, History of Transportation in the Eastern Cotton Belt to 1860 (New York, 1908), 351-353.

[11] Excerpts from the report were printed in the Wilmington Journal, February 8, 1856.

[12] Ibid.

Bluff, a distance of thirty miles, may be considered a fair example. From points within this distance there has been transported during the year 32,360 barrels of Naval Stores, and, if the ordinary demand had existed, immense quantities of Timber and Lumber would also have sought this market. These statistics exhibit in the strongest language the inducements to foster and encourage the local business as the most reliable and certain traffic, and one which cannot be diverted by rival works, but will continue to increase with increased facilities.[13]

In 1856 the amount of naval stores transported on the road increased to 114,176 barrels, and in 1857 the total was 131,147 barrels, chiefly rosin and spirits of turpentine. Crude turpentine and tar accounted for about 7,000 barrels of the total each year.[14]

The Cheraw and Darlington Railroad, begun in 1854 and completed the following year, also furthered the development of the naval stores industry in the Pee Dee region. It ran a distance of forty miles from Cheraw, at the head of navigation on the Pee Dee River, to a terminus with the Wilmington and Manchester Railroad at Florence. The Wilmington merchants hoped to tap the naval stores and cotton districts of the Pee Dee region with their road, and some naval stores did pass over these two roads to Wilmington.[15] In the fall of 1855, soon after the

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[13] Ibid.

[14] President and Directors' Report of the Wilmington and Manchester Railroad Company, 1857 (n.p., n.d.), 15.

[15] Phillips, History of Transportation, 350-351.

Cheraw and Darlington Railroad was opened for traffic, the Cheraw Gazette gave a statement of the amount of freight shipped from Cheraw during the month of November, and added "In addition to the Cotton, the shipments of Rosin and Spirits of Turpentine have been large."[16]

In 1857, however, when the North Eastern Railroad was completed from Charleston to Florence, it offered better facilities for through transit and a goodly portion of the naval stores from the Pee Dee region went this route to Charleston.[17]

In the lower part of the state the South Carolina Railroad running from Charleston to Hamburg near Augusta, Georgia, also transported considerable quantities of naval stores to Charleston. The amount increased from forty-eight barrels in 1846, the first year for which the figures were given, to

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16 Cheraw Gazette, quoted in Wilmington Journal, December 14, 1855.

17 Phillips, History of Transportation, 350-351. The Black River Watchman, published at Sumter, South Carolina, called attention to the high cost of goods received from the North over the Wilmington and Manchester Railroad as compared with other means of transportation, and warned that the merchants and planters of that section were apt to change to other means. The excessive cost lay not in the high rates charged by the road, but in the various charges, such as wharfage and drayage, incurred in Wilmington. The Watchman suggested building wharves on the east bank of the Cape Fear to obviate this difficulty. The Company was supposed to have provided such arrangements but had not done so. Black River Watchman, quoted in Wilmington Journal, April 6, 1855.

33,237 barrels in 1859.[18]

In 1851 the North Carolina Railroad, sometimes referred to as the Central Railroad since it ran from Goldsboro westward through the central part of the state to Charlotte, was begun.[19] On November 18, 1853, the editor of the Wilmington Journal announced that:

> The first consignment received here per the Central Railroad arrived last Thursday, and...consisted of 536 barrels of Rosin and 16 barrels of Spirits Turpentine, which was brought the distance of 12 miles on the Central Railroad, out of Johnston County. We learn that there is now waiting to come in, as soon as the road progresses far enough to receive it, some 10,000 barrels of Naval Stores.

By the end of 1854 the North Carolina Railroad had been completed to Salisbury,[20] however, only small amounts of produce seem to have come to Wilmington over it.[21]

Another transportation facility which had an important effect on the development and expansion of the naval stores

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[18] Samuel M. Derrick, Centennial History of the South Carolina Railroad (Columbia, South Carolina), 211.

[19] Brown, A State Movement in Railroad Development, 79.

[20] Wilmington Journal, December 22, 1854.

[21] Brown, A State Movement in Railroad Development, 93. See also an item originally in the Fayetteville Observer, copied by the Lexington Flag, and quoted in the Wilmington Journal, December 14, 1855.

industry was the plank road.[22] In the eighteen fifties, after the people of North Carolina had awakened to the desirability of making internal improvements, the building of plank roads attracted much attention. The rivers and later the railroads had provided suitable outlets for the products of the naval stores industry; but as the timber along the banks of the streams and along the railroads began to be exhausted, plank roads were built into the depths of the forests and permitted the extension of the naval stores industry into regions previously considered wholly inaccessible.

The pine barrens of North Carolina were well suited for the construction of plank roads, due to the generally level topography of the land and the plentiful supply of timber which they afforded. The increasing demand for naval stores provided an added stimulus for building the roads through heavily timbered pine regions; and although plank roads were constructed in almost all parts of the state, the principal roads were in the naval stores section and radiated from Fayetteville, which was the center of the wagon trade of the state. The name of Fayetteville appeared in seven plank road companies.[23]

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22 The part played by plank roads as a means of improved communication in North Carolina is treated by Robert B. Starling, "The Plank Road Movement in North Carolina," North Carolina Historical Review, XVI (January, 1939), 1-22; (April, 1939), 147-173.

23 Hugh T. Lefler, North Carolina History Told by Contemporaries (Chapel Hill, N. C., 1934), 228.

The first plank road in North Carolina was the Fayetteville and Western, incorporated in 1849 and completed about 1854. Known as the "Appian Way" of North Carolina, this road ran from Fayetteville via Salem to Bethania, a distance of 129 miles. The longest plank road ever constructed, it served for fifteen years as a commercial artery from the inland section to Fayetteville, the head of navigation on the Cape Fear. Still another prominent and profitable road was the Greenville and Raleigh Plank Road, which "did much to promote the naval stores industry in that section of the state."[24]

The influence of the plank roads on the development of the naval stores industry was evident in the increase in the value of the pine lands. Lands previously considered almost worthless increased more than ten times their former value. In 1850 the Fayetteville Observer gave an account of a tract of pine land in Cumberland county which had been offered for sale at twenty-five cents per acre, but found no buyer. It was too far from Fayetteville and from any navigable stream, to make it valuable for either timber or turpentine, and it was worth little for any other purpose. Subsequently a plank road was located through the same tract of land, and when a turpentine producer from one of the lower counties came to Fayetteville to purchase land on the road he offered at first $2.50 and then

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[24] Ibid.

three dollars per acre for the same land, only to have the owner reject both offers.[25]

In 1852 the editor of the Fayetteville Observer in an editorial entitled "The Pine Land Country" again called attention to the value of the plank roads:

> Circumstances, among which stand most prominently our Plank Road improvements, have opened the eyes of the public to the immense value of our pine forests and sandy lands.
> There can be no question, that within the last three years the lands along the line of the Fayetteville and Western Plank Road in this country,...have risen in value far more than the cost of that road through the county. And this is no speculative rise, but is forced upon the public in spite of prejudices, by the intrinsic value of the productions of these lands. The country, for sixty miles, has been thrown open to the production of various articles which previously could not be brought to market. We may instance Turpentine which is too heavy for transportation long distances over bad roads. But upon the Plank Road a number of Distilleries have been put up, and one is now going up sixty miles from this place. When the immense profit of the turpentine business is considered, we may well felicitate the country on a work which has opened at least fifty of those sixty miles to its production. 26

The editor of the Observer was not the only one aware of the value of plank roads to the section. There was much discussion of plank roads, and the letters written to the newspapers suggesting certain routes for them to follow, often with the object of promoting the naval stores industry, indicate that

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25 Fayetteville Observer, quoted in Camden Journal, November 19, 1850.

26 Fayetteville Observer, quoted in Wilmington Journal, December 31, 1852.

the value of plank roads in opening the pine barrens of that region to the world of commerce was amply appreciated by others.[27]

In December 1852 a report compiled by a committee of citizens of Fayetteville revealed that there were thirty-two turpentine distilleries in Cumberland county, in addition to eight or ten others in adjoining counties. Allotting due credit to the Fayetteville and Western Plank Road in the development of the turpentine industry the report added:

> This branch of our commerce dates its existence in 1848. In that year the Legislature granted a charter for the Bank of Fayetteville, and one for the first Plank Road through our pine forests; and by a liberal subscription to the latter, became our copartner in the development of the resources of the county. The Turpentine business alone now produces an annual income to the county of $348,000. [28]

As an indication of the traffic on the road, 9,546 wagons passed through the toll gate during the year ending April, 1851, and the following year (April 1852), a total of 13,657, an increase of forty per cent.[29]

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[27] Fayetteville North Carolinian, February 15, June 21, August 16, 1851. In earlier years there had been some discussion of improving the Lumber River sufficient for steam navigation, or else of cutting a canal from it to the Cape Fear River. Wilmington Chronicle, June 12, September 18, 1844. When the plank road "fever" developed in the fifties, however, the earlier propositions were forgotten, and indicating awareness that "this country will some day be the head quarters for the Turpentine interest," attention was directed to promoting a plank road from Lumberton to Council's Landing on the Cape Fear River. Fayetteville North Carolinian, June 12, 1852.

[28] Fayetteville North Carolinian, December 11, 1852.

[29] Ibid.

While the plank roads reached their highest state of development around Fayetteville, they were also in vogue in the older naval stores region of the Tarboro, Wilson and Washington triangle. The first of these roads to be built was the Greenville and Raleigh Plank Road, begun in 1851. The engineer who surveyed the route from Greenville to Wilson stated in his report to the directors of the Company:

> This route passes through a section of country in which there are no means for transportation, except the public roads which are generally in a condition not calculated to be used for such purposes.
>
> On this account the Lands are but poorly cultivated; and the Pine is abandoned after the first year, if used at all. An improvement such as you propose is needed here, if anywhere; the soil naturally fertile would be cultivated and improved, and the Pine, now so far distant from market as to render attention to this branch of industry unprofitable, would be profitably worked. 30

By March, 1853, the Greenville and Raleigh Plank Road had been completed as far as Wilson. A traveler who journeyed from Newbern to Goldsboro via Washington, Greenville and Wilson, was highly pleased with that part of his journey from Greenville to Wilson--37 miles--over the plank road, which he covered in five and one-half hours. On the way to Wilson he "met a number of Wagons and Carts on the road going down to market. I particularly noticed two small mules, drawing twenty Barrels Turpentine."[31]

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[30] Washington Whig, quoted in Tarboro Press, September 27, 1851.

[31] Newbern News, quoted in Tarboro Southerner, April 16, 1853. On ordinary roads only five or six barrels could be transported by a wagon and team.

The success of this road was soon evident and spurred neighboring towns to embark on a policy of building plank roads. Their advantages to the Tarboro-Washington region were pointed out by a writer in the Tarboro Southerner in 1852:

> From these premises we conclude, that for our condition Plank Roads are the very things we need now;...this portion of Edgecombe and the village of Tarboro', have a deep interest in this matter. Our river of late years has become almost useless, while our fields are doubling their productions. If for want of transportation we should fail to realize an important advance in one crop of corn, cotton, turpentine, (as we now are likely to do in turpentine,) or realize it at a heavy expenditure of labor and money, that single loss would more than pay our share towards Plank Roads or improving the navigation of the river. [32]

While the Greenville and Raleigh Plank Road was the chief one in the upper part of the coastal region, there were others begun in the fifties, such as the Tarboro and Rocky Mount Plank Road,[33] and the Washington and Tarboro Plank Road, the latter having some of the leading merchants of Washington as its promoters.[34]

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[32] Tarboro Southerner, October 23, 1852.

[33] Wilmington Journal, February 18, 1853.

[34] Tarboro Southerner, March 26, 1853.

Science, October 23, 1925.

CHAPTER VIII

COASTWISE AND FOREIGN TRANSPORTATION

Once the naval stores reached a seaport such as Norfolk, Washington, Newbern or Wilmington, they were usually sent to one of the Northern ports by schooner. Throughout the entire period Wilmington, North Carolina, was the leading port of export for naval stores in the United States.

The geography of North Carolina virtually predestined her to a coastal trade since the shoals and sand reef off her coast prevented the larger ocean going vessels from entering her waters except at Wilmington. For the other little ports lying behind the barrier of sand the only means of entering the ocean was through Ocracoke Inlet, below Cape Hatteras. Even here the depth of water was so shallow that the larger square riggers were practically barred from the trade. In order to reach the ports of the North Counties,[1] it was necessary to go down below

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[1] The term "North County" was generally used to indicate the smaller ports in North Carolina, lying north of Wilmington whose trade passed through Ocracoke Inlet. Among these smaller ports were Elizabeth-City, Hertford, Edenton, Murfreesborough and

Hatteras and then double back for a considerable distance.

The people of the North County region urged the opening of the old Roanoke Inlet farther north which would have shortened the distance to New York considerably, but little came of it.[2] In 1827 a meeting of delegates from Newbern, Washington, Plymouth, Edenton, Murfreesborough, Elizabeth City and Hertford assembled at Washington and drew up a memorial to the General Assembly and to their Representatives in Congress. The memorial pointed out the obstructions to navigation at Ocracoke Inlet, urged that the swash there be deepened and that eventually another inlet be opened from Albemarle Sound. By their estimate, the annual exports of the products of that section of North Carolina through Ocracoke amounted to at least five millions of dollars, requiring for their transportation two hundred thousand tons of shipping. The convention found

...that the charge on these vessels for lighterage and detention at the Swash averages one dollar per ton, and amounts annually to two hundred thousand dollars; that the additional rate of insurance, because of the risque and detention of the Swash, average three-quarters of one per cent. and amounts on the exports

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Plymouth. Washington and Newbern, although somewhat larger than these ports, were also frequently referred to as "North County" ports, and even Swansboro and Beaufort, farther south were included in the term. Eventually the term came to mean any or all of the North Carolina ports other than Wilmington. Turpentine or other naval stores products shipped from all these ports was generally known as "North County turpentine," the distinctive feature being that the barrels were usually smaller than those shipped from Wilmington.

[2]Robert G. Albion, Rise of New York Port, 1815-1860 (New York, 1939), 139.

and imports to seventy-five thousand dollars, and on the vessels to sixty thousand dollars per annum. This annual tax of three hundred and thirty-five thousand dollars upon the navigation of our section of the country, independently of the minor evils, the vexations and difficulties which will be readily perceived, cannot but enhance the rate of freight or the cost of conveyance to market.... The freight and charges on articles shipped coastwise for reshipment to their places of consumption, amount, on naval stores, to twenty-five per cent....of their original value. [3]

The memorial also pointed out that because of the higher cost of freight and insurance [4] due to poor navigation, naval stores and other products of the North County ports always sold at a lower price than those of Wilmington. The improvements being made in the Roanoke River, said the memorialists, would result in immense additional quantities of products coming down, on which the costs through Ocracoke would have to be paid, or else they would "go to swell the exports, enrich the enterprise, and increase the importance of Virginia." [5] The Dismal Swamp Canal, completed in 1816, gave these northern counties an outlet to Norfolk, but until 1829 it was not large enough to accommodate any but the smallest vessels, and most of the trade

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[3] The memorial adopted by this convention was published in the Tarboro Free Press, December 27, 1827. For other references to the subject of improvements, see ibid., February 19, 1830, and North Carolina Free Press, June 14, 21, 1831.

[4] In 1835 the insurance rates for a trip from New York to most of the North Carolina ports was from 1-1/4 per cent to 1-1/2 per cent--equivalent to the rates charged from New York to Canton, China. Albion, Rise of New York Port, 270-271.

[5] Tarboro Free Press, December 27, 1827.

continued to go the Ocracoke route.[6] As a result there was a constant succession of schooners and sloops and occasional brigs, making the stormy passage around Hatteras and negotiating the shallow bars and channels where the course was apt to change after every gale.

Edmund M. Blunt in his American Coast Pilot gave minute directions for most of the Atlantic and Gulf coast, but said of the North Carolina coast:

> We decline giving directions for sailing into many ports in North Carolina, as all of the harbors are barred, and always subject to alteration by every gale, particularly in the equinoctial storms; but the bars create only part of the danger in sailing into those ports; it is the vast bed of shoals that lie within the bars, with their innumerable small channels,

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6 In 1830 the Virginia and North Carolina Transportation Company had two steamboats, the Petersburg of 142 tons and the North-Carolina of 70 tons serving as freighters and tow boats, in addition to eight other vessels carrying from 600 to 700 barrels each plying the Dismal Swamp Canal route to Norfolk. North Carolina Free Press, September 28, 1830. There were 59,421 barrels of tar transported through the canal from 1833 to 1836, although the canal was closed for ten weeks in the summer of 1835 and navigation obstructed for a similar period in 1836. Tarboro Press, May 5, 1838. By way of comparison, between November 1835 and February 1836 "Three hundred and one sail, averaging 1000 barrels each,--all laden with full cargoes of Cotton, Grain, Naval Stores, Lumber, &c., amounting to at least ONE MILLION OF DOLLARS, have crossed Ocracoke within the above period. Of this number, 145 sail were from the Northern counties, 90 from Washington, and 66 from Newbern;--234 bound coastwise, and 67 to the West Indies." Newbern North Carolina Sentinel, February 17, 1836. For the year ending October 1, 1836 a total of 1149 vessels passed through Ocracoke, 893 coastwise and 256 foreign, paying an average lighterage fee of $100 per vessel. Tarboro Press, May 5, 1838.

which give to tide so many different directions that even the pilots who live on the spot, find it difficult to carry a vessel in without some accident. 7

R. G. Albion in his Rise of New York Port says that in spite of the many hazards

...the trips were made, dozens of times each month, for beyond those bars and shallows lay most of the nation's supply of naval stores in that day.... These products were in steady demand, both from domestic shipbuilders and for export. These gave New York a third southern product, besides cotton and tobacco, for its east-bound cargoes. Many a packet stowed away a few score or hundred barrels of naval stores to round out her cargo for England or France. 8

At the beginning of the nineteenth century Wilmington received about as many foreign vessels as domestic, as shown by the marine list in the Wilmington Gazette for 1804. Gradually, however, the course of Wilmington's naval stores trade shifted, as did southern cotton, and went via New York and other northern ports to Europe. 9

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7 Edmund M. Blunt, The American Coast Pilot; Containing Directions for the Principal Harbors, Capes and Headlands, on the Coasts of North and South America: fifteenth edition (New York, 1847), 231. Expressive of the hopes and fears of the sailors who plied the North Carolina-West India trade was the couplet:

If Bermuda let you pass,
Have a care for Hatteras.

8 Albion, Rise of New York Port, 141-142.

9 Even in 1804, however, American spirits of turpentine received in Paris was known as Boston turpentine, which perhaps is an indication of the route taken by some of the products. Michaux, North American Sylva, III, 141.

During the year 1835, 467 vessels arrived in New York from North Carolina.[10] That these small coasters carried considerable quantities of naval stores is revealed by an analysis of New York's exports of naval stores to England in 1835. In that year there were forty-nine arrivals of Black Ball, Red Star, and Swallowtail packets at Liverpool from New York, in addition to seventy-one arrivals of other American freighters. The principal cargo of these vessels was cotton, naval stores, and flaxseed. The packets carried a total of 22,412 barrels of naval stores, averaging 457 a trip; the other vessels carried 25,419 barrels averaging 358 a trip. By way of contrast and to show how much the naval stores industry had grown and the change in the course of the trade, the Black Ball packets in 1818, their first year of operation, averaged 170 bales of cotton, 8 barrels of naval stores, and 8 hogsheads of flaxseed per trip, in addition to large quantities of flour, ashes and apples. By 1835 the average packet had a cargo consisting of 695 bales of cotton, 457 barrels of naval stores, and 129 hogsheads of flaxseed, and 36 barrels of apples.[11]

Occasional voyages direct from Wilmington to England still occurred during the 1830's, although the bulk of the trade had

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[10] Albion, Rise of New York Port, 126.

[11] Albion, Square-Riggers on Schedule; The New York Sailing Packets to England, France, and the Cotton Ports (Princeton, 1938), 41-42.

shifted to New York. On March 30, 1830 the Cape Fear Recorder stated that:

> Vessels of every description have been scarce for a long time and are now, much wanted. Our wharves and warehouses are crowded with quantities of produce and merchandise for shipment coastwise.... Naval Stores and some cotton waiting for opportunities to England--at fair rates of freight.

Throughout the ante-bellum period schooners plying the coastal trade to New York seem to have provided the chief means of transportation. In 1843 the Wilmington Chronicle noted that "The schr. Jonas Smith, a regular trader from this place to New York, has made twenty-four trips between the two ports within six days less time than a year."[12]

By 1845 Wilmington had regular packet lines running to nearly all of the leading Northern Ports. There were four lines of packets plying regularly between Wilmington and New York, employing a total of eighteen vessels. Two regular lines between Wilmington and Philadelphia employed nine vessels, and there was a line of four packets between Wilmington and Boston. A contemplated line between Wilmington and Baltimore became a reality a short time later.[13] Nor did this include the regular traders to the West Indies, and the not infrequent transients to other American ports and to foreign countries.

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[12] Wilmington Chronicle, September 20, 1843.

[13] Ibid., October 1, 1845; Wilmington Journal, October 22, 1847.

So successful were these packet lines that efforts were made to establish steamship lines between Wilmington and the ports of New York and Baltimore. In 1847 the Wilmington Journal quoting the Baltimore papers said:

We are gratified to learn,...that the line of packets, running between this City and Wilmington, N. C., has met with such unexpected success that the proprietors contemplate building a steamer with propellers to be added to the line.... This addition to the trade of our city will be productive of much good, not only to our own merchants, but also to those of North Carolina. 14

In the fall of 1852 an effort was made to establish a steam ship line between Wilmington and New York. The Wilmington Herald editorialized in favor of the venture, pointing out the advantages of shipping by steam, such as faster communication, certainty of time of arrival and lower insurance rates. 15

The New York Journal of Commerce also boosted the enterprise in saying:

Our paddle wheels seem destined soon to disturb every water. In addition to the numerous lines of steamers already established, we notice that a propeller is to run semi-monthly between this port and Wilmington, N. C. The facility thus afforded to the citizens of that great naval store region, for direct communication with the merchants of the business mart of the Continent, will no doubt be a matter of congratulation to both

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14 Baltimore American, quoted by the Baltimore Clipper, quoted by the Wilmington Journal, October 22, 1847.

15 Wilmington Herald, quoted in Fayetteville North Carolinian, August 21, 1852.

parties.[16]

Eventually the steamship Ontario arrived in Wilmington, whereupon, the Wilmington Journal of September 3, 1852 remarked:

> This vessel intended as the pioneer of a line of propellers between this port and New York, arrived at her wharf here last Teursday [Thursday] afternoon. She seems to be a strong, staunch vessel, of some four hundred and fifty tons burden, drawing ten feet water, and advertised to carry from three thousand to thirty-five hundred barrels... --Under usual circumstances, it is calculated she will make the run in about three days.... The accommodations for passengers are on a rather limited scale, and we suppose freight is at present the chief object.

Despite the advantages of speed and comparative certainty in time of arrival, bulky articles of such low value as naval stores could not afford the rates of steamers, so the schooner remained the principal means of transporting naval stores from North Carolina to New York. In 1852 Congress passed a law which, by its restrictions, virtually prohibited the transportation of spirits of turpentine on steamships.[17] This eliminated any competition which the steamers might have offered.

Some of the vessels used in this coastal trade were built in North Carolina at Wilmington and Washington,[18] but most of

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16 New York Journal of Commerce, quoted in Fayetteville North Carolinian, August 28, 1852.

17 Statutes at Large and Treaties of the United States of America, 1851-1852, Statute I, ch. 106, sec. 7-9.

18 Washington Whig, quoted in Tarboro Press, April 14, 1849; Washington North State Whig, quoted in Wilmington Journal, February 25, 1849.

them were built in the North. Some were also owned by the merchants of North Carolina, others by Northern firms. Sometimes several merchants owned shares in a vessel, and the vessel's captain was not infrequently part owner himself.

As the naval stores industry expanded rapidly in North Carolina in the decades of the forties and fifties, there was a constant accession of vessels to the coastwise trade. In 1849 a new brig was launched at the Wilmington shipyard of Samuel Berry and Sons, bearing the name of John Dawson, in honor of one of the city's largest merchants.[19]

In 1852 the Henry Nutt, a new schooner bearing the name of one of the prominent business men of Wilmington,[20] was placed on the line of Philadelphia packets to the port of Wilmington. Built in Wilmington, Delaware, the Henry Nutt measured 252 tons, had a one hundred foot keel, ten foot hold, and twenty-five foot beam. She was owned partly by her Captain, John Garwood, and partly by George Harris, commission merchant of Wilmington.[21]

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19 Wilmington Chronicle, December 5, 1849.

20 Henry Nutt deserves more than a footnote in this volume, for in a large measure he helped to make it possible. A substantial citizen of Wilmington, engaged in various business activities in the middle period, among which was the turpentine business, Henry Nutt subscribed to practically all the papers published in Wilmington without regard to politics--and what is even more remarkable, saved them all. They were subsequently given by his heirs to the Wilmington Public Library. They have constituted the most valuable single source for this study.

21 Wilmington Journal, November 25, 1852.

In 1853 the schooner Jas. H. Chadbourn, named for another of the leading Wilmington merchants, was added to the Wilmington trade. Built at Hoboken, New York, at a cost of $21,000 with 126 foot keel, thirty foot beam and ten foot hold, the Chadbourn could carry four hundred tons and was the largest coasting schooner that had visited the port of Wilmington.[22]

The schooner Edward Kidder, with a registered tonnage of 313 tons, was added to the regular line of packets between Wilmington and New York in May 1854.[23] In February 1855 the Journal chronicled a quick trip made by the Edward Kidder:

> The Schooner Edward Kidder arrived at this port, from Charleston, S. C., on Sunday, 21st ult.,--discharged her ballast--took in her Cargo, amounting to about 3,000 barrels, and cleared for New York, at which port she arrived on the 30th ult.; having thus discharged her ballast, taken in cargo, sailed for New York, and arrived there, all within 9 working days. [24]

Other new schooners added to the Wilmington-New York trade in 1854 were the Emily of 278 tons (replacing the Decotah, lost at sea in 1853) owned by Freeman & Houston, a commission merchant firm operating both at Wilmington and New York;[25] and the schooner Lilly, named for the Fayetteville house of H. & E. J.

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[22] Wilmington Herald, quoted in Wilmington Journal, September 30, 1853.

[23] Wilmington Journal, May 19, 1854.

[24] Ibid., February 9, 1855.

[25] Wilmington Herald, quoted in Wilmington Journal, June 2, 1854; Tarboro Southerner, April 24, 1852.

Lilly, owned jointly by the McCreedy, Mott & Company Line of New York and T. C. Worth, commission merchant of Wilmington. With a ten foot depth of hold the Lilly could carry 3,500 barrels.[26]

Two new schooners were also added to the Merchants' Line operating between Wilmington and Philadelphia the same year, the T. C. Worth and the Wm. L. Springs. The former was named for the Wilmington agent for the Line, had a capacity of 2,000 barrels, and was owned by Vanphul & Shannon.[27]

New vessels were added to the Wilmington trade annually. In 1855 the Margaret Y. Davis, with a capacity of 2,500 barrels, the Southern Belle and the Bennett Flanner each with a capacity of 3,000 barrels, the Ida and the Col. John McRae were added.[28] In 1856 came the George Davis and the Charles Smith, the former of 3,000 and the latter 4,500 barrels capacity, and in 1857 the Kate Field of 2,700 barrels.[29]

As the trade increased not only were new vessels added to the ports of New York, Philadelphia and Boston, but the size of the vessels increased. Whereas the earlier vessels were of about 250 tons burthen, with a capacity of 2,000 to 2,500 barrels, and

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[26] Wilmington Journal, September 22, 1854.

[27] Ibid., September 8, November 10, 1854.

[28] Ibid., January 19, March 2, 23, April 20, July 6, 1855.

[29] Ibid., January 18, December 26, 1856, April 10, 1857.

an eight to ten foot draft of water, the later vessels more often carried 3,000 to 4,500 barrels and required ten to twelve feet of water. Both the John McRae (1855) and the Charles Smith (1857) were three masted schooners of 411 and 397 tons respectively, drawing twelve and twelve and one-half feet of water and each with a capacity of 4,500 barrels. The McRae, which cost $27,000, was named for the mayor of Wilmington and carried a graven image of her namesake on her figurehead. She was owned chiefly by the J. H. Chadbourn Company, a local Wilmington house.[30]

In general there was a steady trade between Wilmington and the Northern ports of New York, Boston, and Philadelphia in naval stores. The Wilmington papers usually gave weekly freight rates on naval stores to these three ports. The rates varied with the season, the amount of freight on hand, and the scarcity of vessels, but they were usually from twenty to twenty-five per cent higher to Boston and Philadelphia than to New York.[31] Usually spirits of turpentine was carried under deck to prevent rapid evaporation by the rays of the sun. Rosin, being lower in price, was carried on deck where the rates were cheaper although the

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[30] Ibid., April 20, 1855; December 26, 1856.

[31] Wilmington Chronicle, December 19, 1849. The Wilmington Advertiser first began to give freight rates on naval stores (30 cents per barrel) to New York on September 20, 1839. It was a regular feature thereafter. Subsequently the rates to Boston were added, and on December 19, 1849, the Wilmington Chronicle began giving rates to all three ports. The Wilmington Journal gave the rates to all three ports after January 23, 1846.

insurance premium was higher,[32] because in storms and severe weather the deck load was frequently lost or thrown overboard.[33]

Normally the ships which plied the Wilmington trade could draw not more than ten to twelve feet of water and expect to cross the bar without the aid of lighters. When lighters were required, part of the load was carried down and loaded on the vessel after it had crossed the bar, a costly and time-consuming operation.[34]

In the eighteen fifties, in addition to the coastwise trade carried on by the schooners, there developed a fairly regular direct trade between Wilmington and foreign ports conducted in brigs and barques. In May, 1850 the editor of the Wilmington Chronicle stated:

A merchant of this Town informs us that a correspondent of his in Liverpool advised him, that he (the correspondent) has a ship on the stocks, and is preparing to put on another, both of which will be run regularly between Liverpool and Wilmington, if sufficient encouragement be given to the enterprise. We commend the matter to the earnest attention of our merchants.--No outlay is required from them for vessels. Nothing more than

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32 See letter of Benjamin Blossom to D. W. Jordan, September 8, 1848. Jordan Collection, Duke University Library.

33 Wilmington Journal, September 29, 1854. Norfolk News, quoted in Tarboro Press, December 20, 1851.

34 On July 6, 1855, the Wilmington Journal carried a short notice to the effect that "the Bremen Barque Johanna Wilhemenia went to sea over the Western Bar (crossing the "Rip" inside without touching,) on Friday evening last, drawing 14 feet 10 inches, the heaviest draught that has gone over our bar for 20 years."

their favor and patronage. Surely these will be given unhesitatingly. 35

The merchants of Wilmington gave the trade their support for the marine list of arrivals and clearances in the Wilmington Chronicle in 1850 revealed a regular trade in naval stores between Wilmington and Liverpool, carried on chiefly in British brigs. 36

In 1857 a local vessel, the barque Colin MacRae, was inaugurated into the direct trade between Wilmington and Liverpool. The MacRae was of four hundred tons burthen, had a capacity of 4,549 barrels, and was owned jointly by J. & D. McRae & Company and Wm. Neff & Sons. 37 There were also occasional direct shipments to other English ports and to Amsterdam, Marseilles, Malta, Nova Scotia, and South America.

By far the major portion of each year's crop went to New York, however, with Boston next, followed by Philadelphia and some to Baltimore. One explanation for the large shipments to New York was because freight rates were cheaper than to other ports, and because a large part of the foreign export trade

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35 Wilmington Chronicle, May 8, 1850.

36 Wilmington Chronicle, August 7, 1850. In August, 1850, two British brigs, the Ocean and Nelle, bound from Wilmington to Liverpool and laden with naval stores, were wrecked in a storm off Cape Hatteras. Wilmington Chronicle, August 7, 1850. The same issue of the Chronicle lists another British brig clearing the port of Wilmington "bound for Deal and a market carrying a cargo of naval stores."

37 Wilmington Journal, June 5, 1857.

passed through that port.

For the vessels and seamen engaged in the trade with North Carolina it was a rough life, and the papers frequently carried accounts of disaster at sea. In 1838 the Charleston Mercury quoted the Captain of the sloop William, which arrived at Norfolk from Wilmington, North Carolina, in March of that year as having "counted while running along the beach; 10 schooners, 2 sloops, and 3 dismasted vessels, most of which appeared to have been but a short time on the beach....all seen within 60 miles of Cape Henry."[38] The New York Star, in copying the same notice, commented:

> Here must be a great loss of property if not also of life. It is a hard case for these industrious lumber craft--in their perilous life. There are none of our coasters, not even the Cape Cod fishermen that lead a rougher life than those in this trade between North Carolina and the W. Indies, and Northern States. [39]

For endangering life and limb in this fashion, the ordinary seaman received fifteen to sixteen dollars per month. These were the rates from the North County ports. Wages were in all probability a little higher at Wilmington, and probably changed at various seasons.[40]

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[38] Charleston Mercury, quoted in Wilmington Advertiser, March 30, 1838.

[39] New York Star, quoted in Tarboro Press, April 17, 1838.

[40] Washington North State Whig, February 18, 1846.

In 1842 a very destructive gale at Ocracoke bar did great damage to the vessels there and also at the towns of Washington, Edenton, and other ports a hundred miles inland. The Washington Republican in an "Extra" gave a long list of vessels lost, missing, and injured, and said it was the worst gale in eighty years.[41] The Wilmington Chronicle added:

> Not for many years has there been a gale on the North Carolina coast so destructive to vessels as that of the 12th. Its greatest violence seems to have been in the region extending about thirty miles North and South of Hatteras Cape. It is probable that upwards of forty vessels, altogether, mostly schooners, were lost. A great many lives were likewise lost.[42]

When a schooner was wrecked the law provided for the sale of the salvaged parts and the cargo. By way of illustration, the Wilmington Journal of June 9, 1848, carried the following advertisement:

> THIS DAY, on the 9th inst., at 3 o'clock, P. M., will be sold near Shallotte Bar, under the inspection of the Port Wardens, for account of whom it may concern, the Hull, Standing Rigging, Anchors, Chains, Boat of Schr. Abigail Haynes, as she now lies stranded on said Bar. Also, the cargo of said schooner, landed on the beach, viz: 250 bbls. Spirits Turpentine and balance Rosin.

In August 1850 a gale lasting two days wrecked eleven or twelve vessels near Cape Hatteras, among which were the two

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[41] Washington Republican, quoted in Wilmington Chronicle, July 20, 1842.

[42] Wilmington Chronicle, July 27, 1842.

British brigs, previously mentioned, the Ocean and the Nelle.[43] In 1854 the Marine Intelligence column of the Wilmington Journal stated that the schooner Alcyona bound from Wilmington to Philadelphia "with a cargo of Rosin--put back in distress--...off Cape Fear, she encountered a heavy blow from N. E., lost sails and deck load, and vessel laboring heavily caused her to spring a leak, when Capt. Ireland bore up for this port with 3 feet water in her hold."[44]

In addition to the dangers of the North Carolina coast, there was always the inherent danger of fire from the inflammable nature of the cargo. Several vessels carrying naval stores were destroyed after fire had broken out aboard ship. On April 23, 1819, the Edenton Gazette gave an account of the loss by fire of the schooner Betsey M'Cotton bound from Edenton to Baltimore:

> She took fire [while]...at anchor...and burnt down to her keison [keelson], having drifted (after her cables were burnt off) into two feet water,.... The fire was communicated, it was supposed, by a spark from the stove falling on the quarter deck, which had been very recently payed with turpentine.--Her cargo consisted of naval stores, pitch pine boards and a few barrels of shad. The fire raged with such violence, and communicated so rapidly to the cargo, that the captain and crew narrowly escaped with their lives having but a few moments allowed them to cut the yawl from the stern, into which they precipately threw themselves thro' devouring flames. They with great difficulty reached Roanoke Island, distant about 16 miles, almost

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[43] Ibid., August 7, 1850. The Cape Fear Recorder, August 18, 1830, gave an account of a similar storm off the coast of Wilmington, described as "terrible in its progress" with a list of vessels damaged or destroyed.

[44] Wilmington Journal, September 29, 1854.

exhausted,....[45]

In another instance when fire broke out on the schooner Willets, bound from Washington, North Carolina, to New York with a cargo of cotton and naval stores, the crew by quick action and good luck managed to overcome the flames. The Norfolk News stated that the vessel was discovered to be on fire in her hold while off Ocracoke bar. "The deck load was thrown overboard to procure access to the fire, and the schooner bore for Norfolk, where she arrived yesterday morning. With the assistance of our fire companies, the flames were soon extinguished, and the cargo taken out in a damaged state."[46]

The extent of the naval stores export trade can be seen from some random samples taken from the list of clearances of vessels from the three chief ports of Wilmington, Washington and Newbern. In 1856, for example, between September 25 and October 1, inclusive, there were fifteen clearances of vessels from the port of Wilmington for ports outside of North Carolina, and all fifteen carried cargoes of naval stores. Between November 28 and December 3, 1856, there were sixteen clearances for ports outside of North Carolina, eleven of the sixteen vessels carrying cargoes principally of naval stores. Of the twenty-four

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[45] Edenton Gazette, quoted in the Washington American Recorder, April 23, 1819.

[46] Norfolk News, quoted in Tarboro Press, December 20, 1851.

clearances for outside ports between April 3 and April 9, 1857, thirteen carried cargoes consisting chiefly of naval stores, nine of lumber and two of rice.[47] Six of the vessels laden with naval stores were bound for New York, and four for Boston.

At the port of Washington for the week ending October 30, 1845 there were eight clearances, seven of which carried cargoes of naval stores. For the week ending February 18, 1846 there were seven clearances, five of which carried naval stores and two carried lumber. Of the five clearances for the week ending March 29, 1848, four carried cargoes of naval stores. There were seven clearances from Washington for the week ending April 3, 1850, three of which carried naval stores, the others carrying lumber, grain and staves.[48]

The marine list of the Newbernian, published at Newbern, North Carolina, during 1847-1852, revealed that there was an average of three clearances from the port each week. Of a total of twenty-four clearances for eight separate weeks over the five-year period, all except three vessels carried naval stores. Of those carrying naval stores all were bound for New York, except two, one of which cleared for Boston, the other for

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[47] Wilmington Journal, October 3, December 5, 1856; April 10, 1857.

[48] Washington North State Whig, October 30, 1845; February 18, 1846; March 29, 1848; April 3, 1850.

Baltimore.[49]

Some estimate can be formed of the trade of Wilmington from the number of vessels which arrived at the port. Despite retrogressions in one or two years, the number of arrivals showed a marked increase during the forties and fifties. Beginning with 438 arrivals in 1837, the number increased almost annually until it had reached 779 in 1849, and 814 in 1854.[50] These figures do not include the large number of small vessels engaged in the coasting trade between the smaller inlets of the North Carolina coast and the port of Wilmington.

Due to its bulk, infammable nature, and relatively low value compared with other articles of similar weight and bulk, naval stores was not the most desirable freight. Frequently the market news mentioned the plentifulness of freight and the scarcity of vessels. Albion in his Square-Riggers on Schedule, states that while naval stores was the third item of importance carried by the packet ships on their eastbound voyages between New York and Liverpool, it averaged only about ten dollars per barrel in value, and paid only about forty-five cents in freight. On the other hand, cotton, the principal item, was valued at

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[49] Newbernian, October 26, 1847, January 18, February 29, 1848; Newbernian and North Carolina Advocate, September 2, December 2, 1851, January 6, November 9, 1852.

[50] Wilmington Advertiser, March 23, 1838; Wilmington Chronicle, July 13, 1842, January 3, 1849, January 9, 1850, January 8, 1851; Wilmington Journal, January 21, 1848, May 7, 1852, May 12, 1854, May 15, 1857.

about seventy dollars a bale in New York and paid a freight of about $3.50; while flaxseed, the second item of value, was worth about thirteen dollars per hogshead, and paid a freight of about two dollars.[51] When vessels were scarce or other types of freights were plentiful, the freight rates on naval stores would rise and the price of naval stores would decline. The New York market news of October 21, 1848, stated that "the great difficulty of obtaining freight [for naval stores] hence (other goods being preferred) almost entirely prevents any transaction for export."[52]

On December 16, 1840, the Wilmington Chronicle stated concerning the Wilmington market that turpentine and tar had declined considerably in price during the past week. "The backward prices are owing to two causes, namely, the conviction that sales abroad will not warrant prices paid two weeks or so ago, and the difficulty of procuring vessels for northern voyages."

The graphs on pages 145-146 show the freight rates on naval stores from Wilmington to New York, Philadelphia, Boston and Baltimore for the year 1846-47, and from Wilmington to New York for the year 1859-60.

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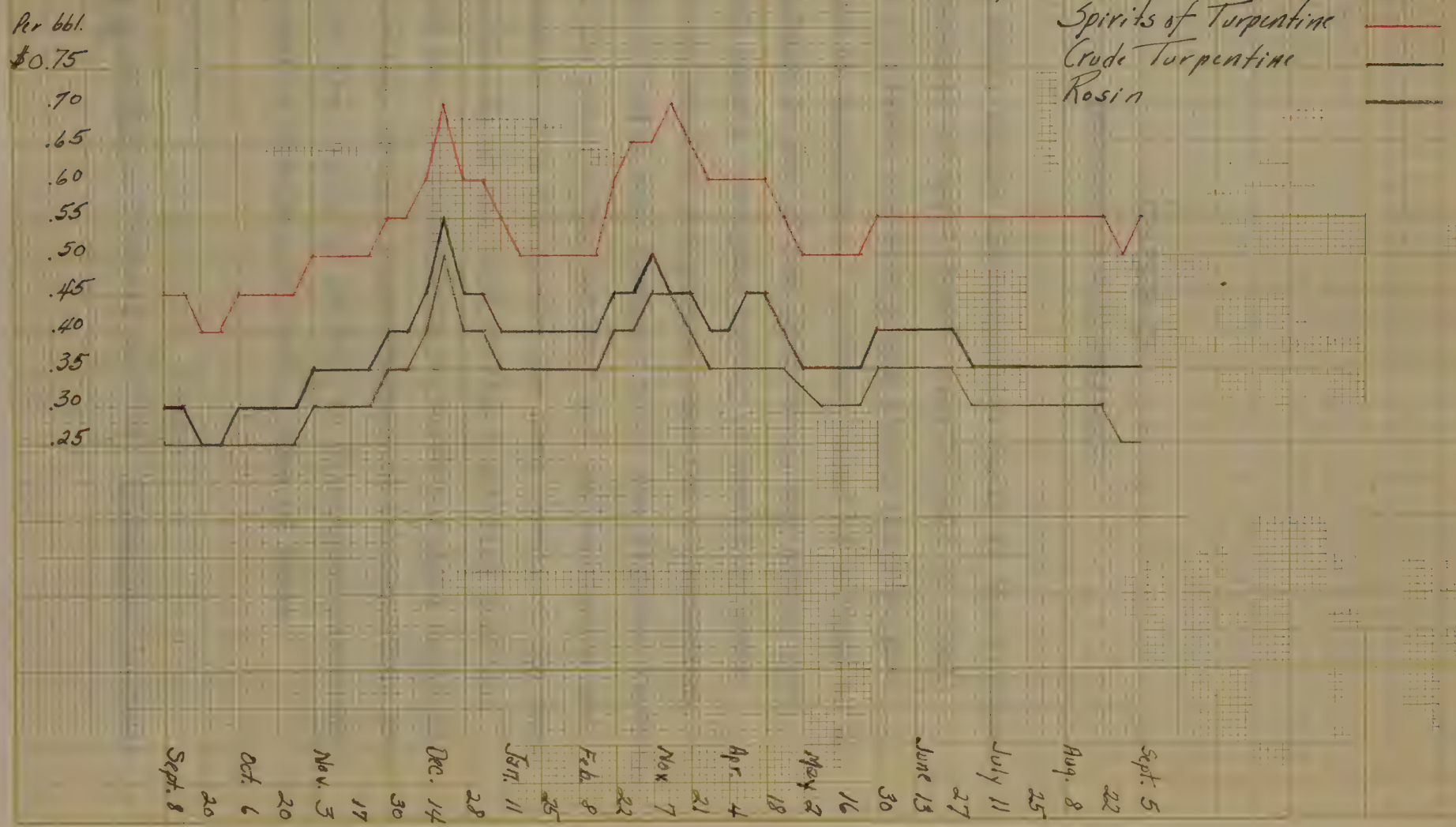
[51] Albion, Square-Riggers on Schedule, 41-42.

[52] Wilmington Chronicle, October 25, 1848.

Freight Rates on Naval Stores from Wilmington to Boston, Philadelphia, New York, and Baltimore, 1846-47.
From: Wilmington Journal, 1846-47.

Graph Showing Freight Rates on Naval Stores from Wilmington to New York, 1859-60.
From: Wilmington Daily Journal, 1859-60.



CHAPTER IX

MERCHANTS AND DISTILLERS

In early days, before the turpentine mania of the eighteen forties, the producer of naval stores usually sold to local merchants, who furnished him with goods during the year and received payment in turpentine. In other cases he shipped to a commission merchant in one of the port towns, who either purchased his naval stores outright, hoping to profit by their resale, or stored, handled and shipped them for a commission. These two types of sales were dominant until the eighteen forties, i. e., through the speculating merchant and the commission and forwarding merchant, with the former the more common of the two.

The transference of the bulk of the distilling business from England and the Northern ports to North Carolina early in the eighteen forties, brought about changes in the marketing of naval stores, and the number of dealers in Wilmington increased from eight in 1840 to nineteen in 1847.[1] Some of these

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[1] Wilmington Advertiser, February 4, 1841; Wilmington Journal, May 21, 28, 1847.

dealers were men who established custom distilleries, purchasing crude turpentine from the smaller producers. Others were speculators engaged in the export trade or in buying naval stores on commission for Northern firms. The majority, however, were commission and forwarding merchants who entered the distilling business and engaged in both aspects of the trade.[2] These firms also served as commission and forwarding merchants for producers who preferred to sell in the Northern market, rather than locally.

There were several ways of arranging local sales. Sometimes the producer, after rafting his turpentine to market, served as his own agent, seeking out a buyer and selling it while still "in the water," the quoted price being subject to a charge of ten to fourteen cents per barrel to cover costs of landing, inspection and cooperage.[3] When the producer was unable to accompany his produce to market it was quite common for the inspector to act as agent for local sales.[4]

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[2] Among the commission houses engaged in the distillery business were Hall & McRae, A. & J. MacRae & Company, Mutt & Grant, Joseph H. Flanner, A. H. Van Bokkelen, O. G. Parsley, Brown & DeRossett, Joseph R. Blossom, W. O. Jeffreys, Hall & Flanner of Wilmington, T. S. Lutterloh, of Fayetteville, and Joseph Potts of Washington.

[3] Wilmington Journal, January 28, 1848. Naval stores brought by railroad incurred about the same charges.

[4] Although not expressly forbidden by law to serve as agent, such activity was obviously inconsistent with the purpose and duties of the office. Efforts were twice made by the merchants to prevent such activities, but without complete success. See pages 183-185, 192-193.

A TURPENTINE DISTILLERY, WILMINGTON, N. C.

In other instances, the services of an agent were omitted altogether, for so keen was the competition during the forties between speculating merchants engaged in the export trade, and among the distillers themselves, that the producer sometimes contracted his entire crop in advance, being guaranteed the highest market price at the time the products were delivered, thus saving the fees normally paid the commission merchant.[5]

When the products were directed to a commission merchant, he took charge upon their arrival, saw that they were landed, inspected and sold. There was a considerable number of commission merchants, sometimes referred to as "agents," who handled only local sales. Some provided wharf accommodations for their clients,[6] others apparently had none, but supplied laborers for landing and handling the products. Some of these apparently operated only during the heaviest marketing season. One agent implied such a temporary arrangement as well as the fact that he had no wharf or warehouse facilities when he announced that he would be "upon the wharves" with his hands in Wilmington when the marketing season began in October, "to enter upon the business

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5 See advertisement by John Hall, commission merchant of Wilmington, in Wilmington Journal, April 3, 1846; by John Myers & Son, and W. H. Willard, commission merchants of Washington, in Tarboro Press, October 27, 1849, August 24, October 19, 1850. These last two desired to contract for hard turpentine only.

6 Wilmington Journal, September 9, 1840, March 20, 1844.

of general agent for the sale of all kinds of country produce on commission."[7] The commission merchant handling a local sale of naval stores usually received one per cent of the gross amount of the sale.[8]

Until the eighteen forties most of the turpentine was produced in small quantities by people with little capital. In the forties, however, the profits of the turpentine industry were so large as to attract men of capital and the necessary labor force to engage in large scale production. Two of the more prominent producers were James R. Grist, who carried on extensive operations in Brunswick and Columbus counties,[9] and Daniel L. Russell, who had a domain of twenty-five thousand acres in Brunswick county, owned one hundred and fifty slaves, and was one of the largest producers in the entire state.[10] Others were Daniel W. Jordan of Brunswick county, and later of Little River, South Carolina,[11] James E. Metts, who owned

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7 Fayetteville North Carolinian, September 7, 1850. See also ibid., January 3, 1852, and Wilmington Chronicle, May 18, 1842.

8 See advertisements of Jesse Bowden, John Hall and others in the Wilmington Journal, September 21, 1844.

9 Grist Collection, Duke University Library, 1842-1861. See also M. Jones' Account Book, Duke University Library. Jones was overseer on Grist's Columbus county plantation.

10 A detailed description of Russell's estate is given in Wilmington Herald, quoted in Arator, I (May, 1855), 43. The annual value of the products from turpentine stills amounted to $25,000 in 1855.

11 Jordan Collection, Duke University Library.

sixty-five slaves and carried on operations in both North and South Carolina,[12] and John A. Avirett of Onslow county who owned one hundred and twenty-five slaves who were principally engaged in turpentine operations.[13]

Not only did these large producers enter the distilling business, but in the late forties and fifties merchants often established custom distilleries at convenient locations along the rivers and railroads, operating mercantile establishments in connection with the distilleries, and exchanging either goods or cash for crude turpentine. Notices in the newspapers offering tracts of pine land for sale not infrequently called attention to the fact that they were situated near the river, the railroad, or a plank road, and would make ideal locations for carrying on the merchandizing and distilling business.[14]

The spirits of turpentine and rosin produced by these inland distilleries were generally shipped to commission and forwarding merchants at North Carolina ports and through them to

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[12] Wilmington Journal, November 16, 1855.

[13] Ibid., November 4, 1853. See also, ibid., September 21, 1855, for a description of Edwin Ellis' plantation, "Trio" on Black River, near Georgetown, South Carolina.

[14] See advertisements in Wilmington Journal, January 28, April 23, 1847, August 25, November 3, 1854, July 6, November 2, and December 14, 1855, August 15, 1856, May 13, 1859; Fayetteville North Carolinian, July 14, 1849; August 24, 1850, May 10, November 29, 1851, May 15, 1852; and Tarboro Press, November 24, 1849.

merchants in New York, or other Northern ports. Thus while the amount of distilling in Wilmington decreased during the fifties, there was an increase in the total naval stores trade, and in the number of commission and forwarding merchants engaged in it.

The commission and forwarding merchant firms were large businesses and engaged in the trade both ways--receiving, handling, storing and shipping naval stores to the North, frequently in their own vessels, and in return procuring provisions, barrels, glue and other supplies needed by the turpentine producers. They sometimes handled local sales, but this was not their chief function. In handling naval stores, they had to provide wharves for loading and unloading, warehouses for the storage of crude and spirits of turpentine to protect them from the weather, and laborers for handling the products.[15] The charges made for these services increased their profit from the trade. If desired by the owner, the commission and forwarding merchant was usually willing to advance a part of the value of the naval stores in cash, until the sale in a Northern port had been consummated.[16]

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15 See advertisements of W. O. Jeffreys, commission merchant, in Wilmington Journal, May 5, 1848; of Petteway & Pritchett, factors and commission merchants, Wilmington Daily Journal, September 8, 1856.

16 W. H. Willard, commission and forwarding merchant at Washington, N. C., offered to advance as much as three-fourths of the market value of naval stores and other produce on goods consigned to him to be shipped to his friends in New York. Tarboro Press, December 1, 1849. J. I. Bryan, naval stores commission merchant at Wilmington, stated that when the price was depressed and owners wished to hold for an improvement, that he would "furnish

For handling shipments to Northern ports, the commission and forwarding merchant usually received two and one-half per cent of the gross amount of the sale. However, William Dunn, auctioneer and commission merchant of Newbern, North Carolina, in 1851 advertised as "charges for Receiving and Forwarding" turpentine, and rosin, including one month's wharfage, three cents per barrel; for spirits of turpentine, including one month's storage, six cents per cask.[17]

Not infrequently the commission and forwarding merchant served as commission merchant for the local producer and also represented a New York firm, buying naval stores on commission for the latter. Such a double function, however, with the obvious conflict of objectives--attempting to sell for the highest price for one client while attempting to buy for the lowest price for another--sometimes led the producer to suspect that he was not getting the best bargain (since the commission merchant was sometimes dependent on the New York house for his financial backing). Hence, the firm of Petteway & Pritchett, a Wilmington House, in 1856 announced that it would give its undivided attention to selling cotton and naval stores, and other country produce, on commission for the producers. To carry out this system effective-

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a WHARF, and make suitable ADVANCES either in CASH or GOODS, to enable them to do so." Wilmington Chronicle, March 20, 1844.

[17] Newbernian, November 25, 1851.

ly it would "not make purchases of the above articles on commission for Northern and Foreign account."[18]

One of the larger of these New York firms which had agents in Wilmington and Washington was that of Benjamin Blossom & Son. Benjamin Blossom handled the New York end of the trade, while his son, Joseph R. Blossom, resided in Wilmington and served as commission and forwarding merchant for producers, and operated a distillery in Wilmington. This firm had an agent in Washington, North Carolina, Sylvester Brown, who handled naval stores on a commission.[19]

Not all of the commission houses had their origin in New York, however. In 1839, John P. Brown and A. J. DeRossett, Jr. of Wilmington, formed a partnership as commission merchants, which eventually grew into the firm of Brown and DeRossett of New York and DeRossett and Brown of Wilmington.[20] This firm was extensively engaged in the naval stores trade, handling naval stores on commission, operating a turpentine distillery in Wilmington, and operating schooners engaged in the coastwise trade to New York.

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[18] Wilmington Daily Journal, September 8, 1856.

[19] Tarboro Southerner, November 6, 1852. Wilmington Journal, July 13, 1855. See also letters from Benjamin Blossom to D. W. Jordan, Jordan Collection, Duke University Library, which afford considerable information on the activities of this firm.

[20] Wilmington Advertiser, September 6, 1839; Tarboro Southerner, March 27, 1852.

Another firm which operated for a time at both places was that of Freeman & Houston. Having originally entered business at Washington, North Carolina, in 1833, it moved to Wilmington in 1852. In New York the firm was known as D. C. Freeman & Company.[21] The firm of Watson, Mears & Rountree which began operations in New York in 1855, was also, according to the editor of the Wilmington Journal, "most essentially a North Carolina house, every man in it having gone from this State...."[22]

The cost of marketing naval stores was much more than the two and one-half per cent the commission merchant received. Other charges were freight to the port, handling, wharfage, extra cooperage on defective barrels, and until 1855 half of the inspection fees. If the producer chose not to sell at that time he had to pay storage fees and insurance.[23] If he shipped to a Northern port, there were the charges of loading, freight, marine insurance, and in New York similar landing, inspection, cooperage, storage and commission charges.

As an example of the cost of marketing, John J. Bryan &

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[21] Wilmington Journal, April 9, 1852, August 24, 1855. After the latter date the business was continued in Wilmington by George Houston.

[22] Ibid., May 11, 1855.

[23] Insurance while not required was highly advisable in view of the large number of fires which occurred among barrels of naval stores on the wharves at Washington and Wilmington.

Company of New York, sold seventy-one barrels of turpentine for Allen Grist in October, 1837, the total sale amounting to $155.25. The charges were as follows: for insurance at one and one-fourth per cent on three-fourths of the value of the naval stores, $1.42; for freight at $0.45 cents per barrel, $31.95; cooperage and inspection, $1.95; wharfage, $0.71; interest on $34.37, for twenty days, $0.12; commission on $155.25, at two and one-half per cent, $3.88; amounting to a total of $40.03, and leaving a net balance to Grist of $115.22.[24]

Since Wilmington was the leading port of sale and export in the South, the prices offered there usually set the prices at the other ports.[25] The prices in Wilmington were, in turn, generally, although not always, determined by the prices in New York, which were influenced by the English market. Sometimes when the market was extremely dull at Charleston naval stores were shipped to Wilmington.

In the last half of the fifties when turpentine operations were being conducted on a fairly extensive scale in Alabama, Mobile and New Orleans became markets. Considerable quantities of spirits of turpentine and rosin were shipped up the Mississippi

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[24] Account of sale of 71 barrels of turpentine by John J. Bryan & Company of New York for Allen Grist, October 5, 1837, Grist Collection, Letters, Duke University Library. Interest was charged only on the money the firm advanced for freight and insurance.

[25] Even on the Charleston, South Carolina, market, prices were "regulated in large measure by those of the Wilmington market." Charleston Mercury, June 26, 1850.

to the Western states, but in the winter months when river traffic was somewhat restricted in these waters, the New Orleans market was dull. As a result naval stores were often shipped from Mobile to New Orleans only to be reshipped to New York.[26] This, of course, reduced the profit on the operation since the commission merchants in New Orleans and in New York received a commission in addition to the original cost of shipping to New Orleans. As an example, 224 barrels of rosin which were shipped from Mobile to New Orleans, and reshipped to New York sold for $1,361.24, but yielded only $966.92 after deduction of charges at New York and New Orleans.[27] It was probably this round-about course of selling which caused Benjamin Grist, overseer and manager of James R. Grist's Mobile operations to write to Grist in Washington, North Carolina, "Mr Smith & Co put me in thier mind of vanbocklen ca Wilmington commission merchants when he dide our bisness it tack all to pay commissions & fright & insurance."[28]

Wilmington's primary position among southern markets for naval stores was greatest in the forties and fifties when its

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[26] Marshall J. Smith & Company to A. & J. R. Grist, January 4, 10, 1860. Grist Collection, Letters, Duke University Library.

[27] Account sales of 244 barrels of rosin by R. M. Blackwell & Company, for A. & J. R. Grist, September 24, 1858. Grist Collection, Documents, Duke University Library.

[28] Benjamin Grist to James R. Grist, September 4, 1859. Grist Collection, Letters, Duke University Library.

large number of custom distilleries competed with the shipping speculators and commission merchants for the available supply. Furthermore, many of the New York commission houses maintained branches or agents in Wilmington, and the longer experience of the Wilmington merchants gave them a keener knowledge of the vagaries of the trade.

CHAPTER X

THE INSPECTION SYSTEM

One of the central features of the marketing of naval stores was the inspection system. The system was established in Colonial times in an effort to improve the quality of produce exported from the colonies. It was common to most of the colonies and related to practically all pine products offered for sale and export.[1]

After the colonies obtained their independence, the Colonial inspection laws were continued with few alterations. In Virginia, which produced some naval stores but whose shipments from Norfolk consisted chiefly of North Carolina products, there were few changes throughout the period. In South Carolina

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[1] In Virginia the law required all tar, pitch or turpentine exposed for sale or export to be inspected. A Collection of All Such Acts of the General Assembly of Virginia, of a Public and Permanent Nature, As Are Now in Force (Richmond, 1794), ch. 128. In North Carolina the inspection laws applied only to naval stores to be exported; the crude turpentine purchased by distillers was not required to pass through the hands of the public inspector, although it sometimes did. Walter Clark, ed., The State Records of North Carolina (Goldsboro, 1905), XXIV, ch. 26. Hereafter cited as N. C. State Records.

which had been a large producer of naval stores in the Colonial period, the colonial regulations were continued without alteration until 1810, when for all practical purposes they were repealed.[2] This repeal probably indicated the decline of naval stores production in South Carolina until the beginning of the turpentine mania of the 1840's, although some tar continued to be produced in the vicinity of Georgetown. In the late 1850's, after the turpentine industry had invaded South Carolina and began to assume sizeable proportions in the state, the legislature enacted a law requiring crude turpentine and the two lower grades of rosin to be inspected in Charleston.[3] This law of

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[2] The Colonial law was enacted in 1746 and remained in force until 1810. Benjamin James, A Digest of the Laws of South Carolina,...down to the Year 1822 (Columbia, 1822), 178.

In 1810 a new law was enacted which specified the fees to be charged by the owners of wharves for wharfage, or for landing, weighing, storing naval stores and other produce. "For landing every barrel of tar, pitch and turpentine respectively, one cent, for shipping every barrel of tar, pitch and turpentine respectively, one cent;...."

This law also provided that after January 1, 1811 "there shall be no inspection in Charleston and Georgetown of produce, naval stores, lumber...brought to market from the interior country; unless the person or persons so bringing to market, and offering for sale any such produce, naval stores, lumber...as aforesaid, do consent to the inspection in which case the inspector shall as heretofore receive such fees as are now established by law." S. C., Laws, 1810, p. 65.

[3] S. C., Laws, 1856, pp. 523-534. The law required the inspector to weigh, inspect, and brand each barrel with the weight, quality of turpentine and the word "Charleston." He received three cents for weighing and three and one-quarter cents for inspecting each barrel. He was forbidden to engage in the naval stores trade as purchaser or exporter, and required to give bond annually for two thousand dollars.

1856, however, failed to provide authorization for the appointment of an inspector, and it was not until 1858 that a law was passed authorizing the City Council of Charleston to appoint an inspector.[4]

In 1859 Charleston had one inspector of naval stores, compared with twelve at Wilmington.[5] A considerable quantity of South Carolina naval stores was produced in the region bordering on the North Carolina line, often by North Carolinians who had purchased pine land and moved into South Carolina. It was usually marketed in Wilmington by way of the Wilmington and Manchester Railroad, and hence passed through the North Carolina inspection.

Since the industry was chiefly located in North Carolina during the ante-bellum period, the following description of the inspection and marketing of naval stores is based primarily on the inspection laws enacted by the state of North Carolina, and the customs, usages, and traditions which developed in the trade.

For the period under consideration, 1789-1861, the act of 1784 served as the basic law for the inspection of naval stores.[6]

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[4] S. C., Laws, 1858, p. 744. No reference was made to Georgetown in either of these laws.

[5] The Charleston Directory (Charleston, 1859), 248. Wilmington Journal, March 12, 1858.

[6] N. C. State Records, XXIV, ch. 26.

Subsequent laws were largely amplifications of modifications of particular sections of it. By this act and throughout the entire ante-bellum period, the county courts were given almost complete control over the inspection system. By an act passed in 1793 they were given power to appoint places of inspection as well as the necessary inspectors.[7] In 1805 the number of inspectors to be appointed for any one town was limited to six.[8] With the concentration of the naval stores industry in the Cape Fear region in the late forties and fifties, a law in 1852 allowed the county court of New Hanover to appoint "eight or more inspectors for the town of Wilmington."[9]

An act of 1791 provided that an inspector should hold his office during good behavior, but upon complaint arising he was to be tried by the court, and if found guilty by a jury, was

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7 F. X. Martin, ed., Acts of the General Assembly of North Carolina, 1791, 1792, 1793, 1794 (Newbern, 1795), ch. 14. Prior to 1793 the General Assembly had named the places of inspection, although it left a wide latitude in some counties, by saying "and all other convenient landings." N. C. State Records, XXIV, ch. 26, sec. 4.

8 Frederick Nash, James Iredell and William H. Battle, eds., The Revised Statutes of the State of North Carolina (Raleigh, 1837), ch. 59, sec. 6. Cited hereafter as N. C. Revised Statutes of 1837.

9 Bartholomew F. Moore and Asa Biggs, eds., Revised Code of North Carolina, Enacted by the General Assembly at the Session of 1854;... (Boston, 1855), ch. 60, sec. 6. Hereafter cited as N. C. Revised Code of 1854.

to be removed and another appointed in his stead.[10] This procedure continued during the remainder of the period,[11] with one or two exceptions. In 1821 an act provided that the inspectors of naval stores in the town of Wilmington should be appointed annually;[12] in 1831 this law was altered, and they were appointed biennially.[13] In 1850 provision was made for the popular election of inspectors for the county of Craven (in which the port of Newbern was situated),[14] every two years.

Inspectors were required to be residents of the county for which they were appointed, were prohibited from holding any other office, and could not be elected to the General Assembly while serving as an inspector.[15] In 1805 an amendment to the law prohibited the appointment of any merchant engaged in the exportation of inspectable commodities as a naval stores inspector.[16] To insure the faithful discharge of the office, inspectors were required upon appointment to give bond of five

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[10] Martin, ed., Acts of the General Assembly of North Carolina, 1791, 1792, 1793, 1794, ch. 14, sec. 8.

[11] N. C. Revised Code of 1854, ch. 60, sec. 8.

[12] N. C., Laws, 1821, ch. 70.

[13] N. C., Laws, 1831, ch. 58.

[14] N. C., Laws, 1850-51, ch. 69.

[15] N. C. State Records, XXIV, ch. 26, sec. 19, 5, 2.

[16] N. C. Revised Statutes of 1837, ch. 59, sec. 5.

hundred pounds, later changed to one thousand dollars, with two securities, to the county court. They were subject to suit for damages for three years after leaving the office.[17]

The duties of an inspector of naval stores, according to the law of 1784, were constantly to attend the place for inspection, provide a branding iron bearing his name and place of residence, furnish the same number of laborers as the owner to assist in weighing and inspecting the commodities to be weighed and inspected, and furnish the proper equipment and scales for that purpose.[18]

The inspector was also required to keep a record of all naval stores inspected, including the maker's name and mark, the number of barrels landed, the number of barrels inspected bearing the same mark, and the merchant or shipper's name causing the same to be inspected and the time of inspection; and he was to give a certificate of any parcel to any person requiring the same on the payment of one shilling, later changed to ten cents.[19] These requirements were unchanged throughout

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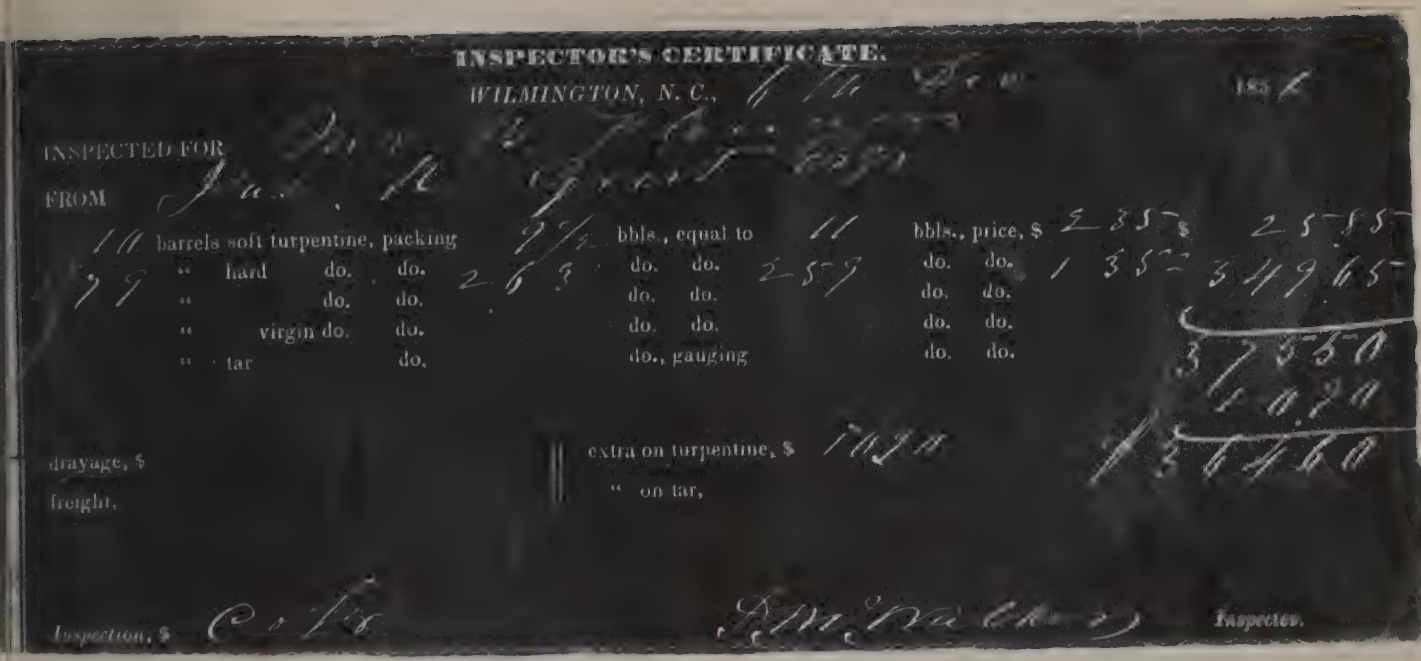
17 N. C. State Records, XXIV, ch. 26, sec. 2. N. C. Revised Statutes of 1837, ch. 59, sec. 3.

18 N. C. State Records, XXIV, ch. 26, sec. 9.

19 N. C. State Records, XXIV, ch. 26, sec. 13; N. C. Revised Statutes of 1837, ch. 59, sec. 50.



INSPECTOR'S CERTIFICATE.

WILMINGTON, N. C., 18

INSPECTED FOR

FROM

10	barrels soft turpentine, packing	9½	bbls., equal to	11	bbls., price, $	2 35	25 85
99	" hard do. do.	263	do. do.	255	do. do.	1 35	349 65
	" do. do.		do. do.		do. do.		
	" virgin do. do.		do. do.		do. do.		
	" tar do.		do., gauging		do. do.		

3 75 50
+ 0 20
3 75 70

drayage, $

freight,

extra on turpentine, $ 10 20

" on tar,

Inspection, $ 2 50

Inspector.

the ante-bellum period, except for a few minor additions.[20]

Inspectors of naval stores were not paid a stipulated salary, but received compensation for their services in the form of fees, to be paid by the purchaser.[21] The inspectors were usually allowed two cents for each barrel of tar inspected, two and a half cents for each barrel of pitch or turpentine inspected, and ten cents for each certificate of the number and quality of the barrels inspected.[22] These fees remained unchanged, except in the case of tar which was increased to two and a half cents for each barrel inspected,[23] and for the addition of spirits of turpentine to the list of items in 1857 at five cents per cask.[24]

Rather minute specifications were established for the regulation of the quality of naval stores to be exported, especially in regard to the barrels. The legal size and weight

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[20] A law of 1829, supplemented by a law in 1842, made the inspector the final judge in disputes between buyers and sellers over the amount of money to be allowed for extra cooperage on defective barrels. A law of 1857 authorized and required inspectors to gauge spirits of turpentine at Wilmington. Both of these laws are treated later.

[21] In actual practice it seems that custom regulated who paid the fees, and apparently they were divided between the seller and the buyer, until 1855 at least. See pages 191-193.

[22] N. C. Revised Statutes of 1837, ch. 105, sec. 33, ch. 59, sec. 50. The law of 1734 specified as fees two pence for each barrel of tar, three pence for each barrel of pitch or turpentine inspected, and one shilling for each certificate given. N. C. State Records, XXIV, ch. 26, sec. 13, 20.

[23] N. C. Revised Code of 1854, ch. 102, sec. 30.

[24] N. C., Laws, 1856-57, ch. 27.

[illegible] period, except for a few minor modifications.

[illegible] of naval stores were not [illegible] a stipulated [illegible] received compensation for their services in the [illegible], to be paid by the purchaser. The inspectors were [illegible] two cents for each barrel of tar inspected, two [illegible] cents for each barrel of pitch or turpentine in- [illegible] and ten cents for each certificate of the number and [illegible] of the [illegible] inspected. [illegible] in the case of tar which was increased to two [illegible] for each barrel inspected, and for the ad- [illegible] of turpentine to the list of items in 1897 at [illegible].

[illegible] minute specifications were established for the [illegible] of the quality of naval stores to be exported, re- [illegible] in regard to the barrels. The legal size and weight

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[illegible] of 1828, supplemented by a law in 1866, vested the in- [illegible] the final judge to determine between buyers and sellers [illegible] the amount of money to be allowed for broken packages on [illegible] barrels. A law of 1897 [illegible] and increased in- [illegible]

[illegible], until 1906 at least. See pages 101-103.

[illegible] Statutes of 1897, p. 108, sec. 3; chs. 30, [illegible]. Three pence for each barrel of tar or turpen- [illegible], and one shilling for each cord. Note [illegible] given.

[illegible] Records, XXIV, ch. 53, sec. 1, p. 20.

[illegible] Code of 1906, ch. 108, sec. 80.

[illegible], ch. IV.

of a barrel of pitch or turpentine was established by the act of 1784 at thirty-two gallons and 320 pounds. The barrels were to be made of good seasoned staves at least three-quarters of an inch thick and not exceeding five inches in breadth, and covered with twelve good hoops.[25] The pitch and turpentine were to be free from any fraudulent mixture, and only after the inspector had weighed, "inspected, gauged, found clean, well filled, and in merchantable order," were they to be branded and passed.[26] As will be seen later, the size, weight and condition of the barrel was a focal point of dispute between producers and buyers, and the legal requirements were seldom adhered to except when it suited the convenience of the makers and dealers. After the "turpentine boom" of the eighteen forties began, several new laws were enacted on this subject which will be discussed later.

All producers were required to brand their initials on each barrel of naval stores offered for sale, and all barrels not exported within twenty days after their inspection were

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25 N. C. State Records, XXIV, ch. 26, sec. 12, and amendment, ch. 5, sec. 5, 6. To assure good barrels, a provision of the act of 1784 which remained in force throughout the period required all custom coopers to have a brand which was registered with the clerk of the county court, and with which he was required to brand all the barrels he offered for sale. Ibid., XXIV, ch. 26, sec. 17; N. C. Revised Code of 1854, ch. 60, sec. 57.

26 N. C. State Records, XXIV, ch. 26, sec. 12, and amendment passed the same year, ch. 5, sec. 5.

required to be reinspected before actual exportation, as leaving them exposed to the sun or keeping them too long on hand might render them unmerchantable.[27]

It should be pointed out that naval stores were condemned only when they appeared to be fraudulently mixed and not because of some minor defect in the barrel. This is shown by a number of acts. The original law of 1784 stated that in case any tar was in a non-regulation size barrel, or in bad casks, it was to be put in merchantable order at the expense of the owner before being passed by the inspector.[28] An amendment to this law, passed in the same year, declared further, the inspector was not to refuse or condemn any barrel of pitch or turpentine merely for want of weight, if it were a good barrel "of full size, and well filled with good pitch or turpentine; any law to the contrary notwithstanding."[29] Nor was he to condemn any barrel because of varying widths and thickness of the staves, provided they did not exceed the limits set by law.[30]

Another law passed in 1821 restricted the authority of the inspector by providing that after January 1, 1822 he should

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[27] N. C. State Records, XXIV, ch. 26, secs. 12, 13.

[28] Ibid., ch. 26, sec. 12.

[29] Ibid., ch. 5, sec. 5.

[30] Ibid., ch. 5, sec. 6.

not "condemn any Turpentine whatsoever, if it be clear of any fraudulent mixture to render it unmerchantable," and requiring him to make a difference in his bill with respect to hard and soft turpentine, or of dippings and scrapings, designating the character of each barrel by a brand.[31]

The emphasis in this law is placed on the question of intentional fraud. There were to be two qualities, and as long as there was no evidence of fraudulent mixture "it shall pass as good clear Turpentine." The quality of turpentine and condition of the barrel were relatively unimportant, the latter to be remedied at the expense of the owner. But a serious charge would have to be brought against the producer before any turpentine could be condemned.

In 1833 an amendment to this law in regard to the inspection of turpentine in Wilmington further weakened the inspection system. The terms "dippings" and "scrapings" were omitted and the more general words "soft" and "hard" employed to describe the qualities, which meant a lower standard was established for judging the products. The inspector was required under penalty of a fine "to decide between the hard and the soft," and to brand the head of each barrel with an "S" or an "H" according to its quality. If there was no evidence of fraudulent mixture which would make the barrel unmerchantable,

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[31] N. C., Laws, 1821, ch. 4.

"each barrel so inspected and branded shall be held and considered as good clear turpentine; any law, usage or custom to the contrary notwithstanding."[32]

When fraud had actually been committed, the original act of 1784 required the inspector to condemn the naval stores and turn them over to the wardens of the poor, who were to have them cleansed and sold for the benefit of the poor.[33] In 1823 a new law provided that all tar, pitch or turpentine which was condemned was to be returned to the owner.[34] This act removed the penalty for attempting to commit fraud, and opened the door for lower standard products, as the usual course was for the owner and the buyer to compromise the issue, the owner accepting a reduction in price according to the quality.[35] There were some efforts at deliberate fraud,[36] but most of the difficulties

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[32] N. C., Laws, 1833-34, ch. 172.

[33] N. C. State Records, XXIV, ch. 26, sec. 12.

[34] N. C., Laws, 1823, ch. 37.

[35] See statement by the Wilmington merchants concerning this custom in the Wilmington Journal, June 11, 1847.

[36] An item in the Newbern Spectator in 1842 stated that "A cheat of the most contemptible and pitiful character, was perpetrated by a Turpentine dealer upon one of our distillers of that article during the last week. Upon emptying the contents of a barrel of turpentine into the still, it was found that the staves of the barrel were from three to four and five inches thick, pared down at the heads to the usual thickness of staves, with angular interstices between the staves, and an incision entirely around the barrel, opposite the bung hole, so that the rod of the inspector might meet with no obstacle, and that the barrel upon inspection might shew the (apparent) guage required by law."

arose from the carelessness of the producers in making their barrels, and negligence in cleaning the boxes before dipping began in the spring;[37] and, of course, in their persistence in making tar in the ancient manner even after a new method had been invented.

In the fifties the complaint against substandard barrels was somewhat mitigated, although not entirely, by improvements in the manufacture of barrels. Also, after distilling became an important business most of the barrels for spirits of turpentine were purchased from the North, and when they would no longer serve for spirits barrels were used for crude turpentine. Even on home made barrels used for rosin, tar, and to some extent for crude turpentine, iron hoops were substituted for the former wooden hoops.

By way of further precaution, the law of 1784 required the inspector's certificate to be given to the next purchaser, in case of resale; or if exported, to the captain of the vessel on which shipped, each handler taking oath that the commodities were the same as those described in the certificate.[38] The captain was forbidden to receive on board his vessel any commodities that had not been inspected according to law, and was to

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Newbern Spectator, quoted in Tarboro Press, February 19, 1842.

[37] Olmsted, Journey in the Slave States, 341.

[38] N. C. State Records, XXIV, ch. 26, sec. 18.

take oath to that effect and to produce the inspector's certificate before his ship could be cleared by the naval officer of the port.[39]

The number of inspectors at Wilmington grew from five in 1830, to six in 1842 and eight in 1852. However, after the expansion of the industry in the forties, there were as many as five or six additional inspectors appointed for districts around Wilmington in New Hanover county in the years after 1846. No records have been found of an inspector having been removed from office, and tenures averaged slightly below six years between 1842 and 1860. These figures relate only to Wilmington and vicinity. There were, of course, counties up the rivers and along the coast which had their own inspectors.[40]

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[39] Ibid., ch. 26, sec. 6, 7, 8. The requirements in regard to entering and clearing a vessel were antiquated after 1819, as most of the trade was in coastal vessels which, after July 1, 1819, were not required to enter and clear at the custom house of the ports. The provisions recounted in this paragraph were all repealed so far as respected the town of Newbern by a law passed in 1843. N. C., Laws, 1842-43, ch. 39.

[40] Of the thirty-three separate inspectors appointed between 1842 and 1860 for which records are available, fourteen of them served only one term, five of them two terms. There were eight, however, who served five or more terms. These statistics are based on the appointment of inspectors by the county court as reported in the Wilmington papers. Until 1842 the appointments were made in June. Beginning in 1843, they were made in March. There were actually thirty-four inspectors appointed between 1842-1860, but one was an interim appointment of only ten months and is not included in the statistics above. Two of the above inspectors served for eighteen years, and one of these had served two years previously, 1830-31.

Occasionally inspectors formed partnerships for a given period, although the majority of inspectors seem to have worked alone. In 1845 John S. James and P. M. Walker, inspectors at Wilmington, announced that they had formed a partnership in the inspection business for the year 1845-46, and

> that in so doing, they will be enabled by their united exertions to render despatch to their customers. It has frequently been the case during Freshets, when a crowd of produce has been thrown into market, that owners of Turpentine have met with delay in getting their Bills of Inspection; This will be obviated with us by our connexion in business. 41

James and Walker renewed their partnership after they were reappointed to office by the court the following March. Two other inspectors, William R. Larkins and J. L. Corbett, also announced the formation of a copartnership in the inspection business at Wilmington at the same time.[42]

In 1843 the six inspectors at Wilmington received an average of $888 each from inspection fees. This, however, does not include the fees gained from certificates issued to the seller and buyer for each lot of naval stores inspected, which there is no means of determining.[43] In 1858 the eleven inspectors, who made returns to the county court, received an

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41 Wilmington Journal, June 13, 1845.

42 Ibid., March 27, 1846. In 1854 Dugald MacMillan and John C. Bowden, inspectors at Wilmington, formed a partnership. Ibid., April 7, 1854.

43 Wilmington Chronicle, June 22, 1842, June 21, 1843.

average of $1,176 in fees. There was a considerable difference, however, in the amounts which the individual inspectors received, as some of them inspected two or three times the number of barrels inspected by others. W. J. Price, for example, received a total of $2,265 in fees in 1858, whereas John W. Collins received only $410.[44] Since compensation was based on the fee system, the inspectors openly sought patronage through advertisements in the newspapers.

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[44] Wilmington Journal, March 12, 1858.

CHAPTER XI

CUSTOM VERSUS LAW IN MARKETING

In practice the working of the inspection system seems to have been more a matter of custom than of law. As a means of improving the quality of naval stores its usefulness was limited. Throughout most of the period under treatment there was ample testimony of the carelessness with which North Carolina naval stores were prepared, and of the faulty and defective barrels in which they were shipped. Even in the colonial period there was complaint against the poor quality of North Carolina naval stores. In 1770 a group of London merchants, importers of naval stores from North Carolina, in a memorial on the subject set forth in detail the defects of these commodities.[1]

In 1812, Hugh Williamson, in his History of North Carolina, painted a graphic picture of the filthy appearance of Carolina tar when it landed in Europe:

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[1] Crittenden, Commerce of North Carolina, 58.

...the external appearance of the barrel is disgusting, but the contents are supposed to be worse. A barrel of tar from the Baltic is delivered in England or France as neat and clean as a barrel of beef or pork; but the Carolina barrel is covered and colored with tar. The leakage however is not the only tax on the shipper, for it is supposed to contain some gallons of sand, chips, pine leaves, and water,... Clean tar should be shipped in tight barrels; but the Carolina tar barrels are extremely defective. They are always made of soft wood, and that wood, in many cases, is not seasoned. The heading is badly fitted, and the barrel leaks at every joint. [2]

The inferiority of American tar compared with that produced in the Baltic countries was soon apparent in the decline in exports to England. Of the 10,900 lasts--fourteen barrels each--of tar imported into England in 1831, only one thousand came from the United States.[3]

Not only was there complaint from foreign merchants about the quality of American naval stores, but even merchants in the United States raised their voices against the careless manner in which they were prepared for market. In 1813 a merchant in Baltimore wrote to a merchant in Newbern:

You will observe a considerable loss on the Rosin, this must be owing to the fault or badness of your inspection, from the smallness of the barrels, it has the appearance of intended

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[2] Williamson, The History of North Carolina, II, 213-215.

[3] Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 75. The possible exhaustion of the supply of lightwood within easy reach of the watercourses for making tar, as well as the emigration of large numbers of North Carolinians to other states after the close of the war of 1812, may have been a factor in the curtailed shipments.

fraud. The barrels of Rosin from Cape Fear, Georgia and Virginia are generally from 20 to 25 per cent, larger than those from Newbern, certainly the inspection cannot be the same as in those other places, or why should there be that great difference.

...those who make use of that article will know the difference, it certainly is just and fair that all purchasers should receive their full weight and measure. Not only the loss sustained on the measure when sold, but the shipper is the loser on the freight, for he is paying freight for whole barrels, when in fact they are only three quarters and often short of that, your barrels contain generally 6 to 8 hoops, those from other places always 12 and in good order.

Some years ago the Legislature of Maryland, very wisely passed a law for the inspection of your Pork, before that took place, all the Pork from your State was horrid trash:.... And its highly probable that an application will be made to our House of Assembly, to pass a law for the inspection of Rosin and other Naval Stores. [4]

Occasionally there were efforts to improve the quality of the products, sometimes by the merchants and at other times by the inspectors themselves. More commonly, the trade followed the dictates of tradition and custom until the degeneracy reached such a low ebb that a determined effort was made by all parties to bring about a change.

In 1813 John R. Good, inspector at Newbern, North Carolina called the attention of the makers and exporters of naval stores and the makers of barrels for naval stores to the requirements of the law in regard to inspection. The violation of these laws had become so frequent, he stated, that they were likely to be disregarded altogether, unless persons were found

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[4] Newbern Carolina Federal Republican, August 28, 1813.

independent enough to enforce them. As one of the sworn inspectors of the town of Newbern, he "therefore gives Notice, that he will prosecute for every violation of the Inspection laws, which shall come to his knowledge: and that no one may plead ignorance as an excuse, he gives them an abstract of the laws."[5]

Until the eighteen fifties the barrels of naval stores shipped from the northernmost counties of North Carolina were smaller in size than those shipped from Wilmington and were usually called "North County barrels." Several efforts were made to increase the size of the barrels, but only a few of the producers in that area adopted the larger barrels. One such effort was made in 1824, the promoter stating that:

> With a view to impress on the minds of the Turpentine makers, who look to this place for a market, the necessity of paying more attention than they usually do to the quality and thickness of the Staves and strength of the Hoops, as well as to the size and proper proportion of the barrels, so as to raise the reputation of our Inspection to an equality with that of Wilmington; one of your subscribers has to request of you the favor to insert the following statement in your paper:[6]

He then gave an account of a shipment of 180 barrels of turpentine from Newbern, "the barrels being of seasoned timber, of full size, and very well proportioned; the hoops stout and well put on." This lot was forwarded to a commission house in

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[5] Newbern Carolina Centinel, August 22, 1818.

[6] Ibid., July 3, 1824.

New York with instructions that it be sold separately from the rest of the cargo to determine how the 180 barrels would compare with Wilmington barrels. This lot of Newbern turpentine proved to be of equal quality with Wilmington turpentine, and sold for fifty cents more per barrel than the Newbern barrels of ordinary size and make.

Again in 1830 when Silvester Brown and C. V. Swan were appointed inspectors of naval stores at Newbern, they published a statement to the effect that "after the 13th day of June, all TAR, PITCH and TURPENTINE, offered for sale will be inspected according to the laws of the State."[7]

In 1837 C. S. Kewell and John Orkney, inspectors of naval stores at Washington, North Carolina, served notice that barrels were not meeting the requirements of the law and that thereafter more stringent inspections would be made:

> Whereas the laws of the State prescribing the size of Tar and Turpentine barrels, require that each and every barrel shall contain 32 gallons; and as many barrels are brought to this market that are fraudulently made, we hereby give notice, that hereafter, all barrels of tar and Turpentine brought to this place for inspection and sale that are fraudulently made, or not made round and of fair proportions, will be condemned for want of proper size--as they do not contain the quantity required by law, altho' they may guage by the rod. [8]

Despite the fact that the law recognized only two qualities

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[7] Ibid., May 29, 1830.

[8] Washington Whig, quoted in Tarboro Press, April 1, 1837.

of naval stores, hard and soft,[9] custom had established a third quality known as "mixed turpentine." "Mixed turpentine" was either Virgin turpentine which had been left so long undistilled that it had become dry; or turpentine which had some hard turpentine mixed in it. The advantage to mixing the hard with the soft was that whereas custom had fixed the price of pure hard turpentine at about one-half the price of soft, only about one-fifth deduction from the price of soft was made in the case of mixed turpentine.[10] Hard and soft turpentine were fairly standard qualities; but the quality of mixed turpentine varied, and was often a point of dispute between buyers and sellers as fraud could be more easily perpetrated in connection with it. According to one writer, by the use of a little hot water scrape and dip turpentine could be so mixed as to pass for soft.[11]

This in turn led the merchants to seek a strict inspection and to demand greater deductions from barrels that appeared to be unduly mixed. Disputes arose over the price and also over the charges made for repairing defective barrels. The producers apparently felt that the merchants were demanding greater

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[9] N. C., Laws, 1833-34, ch. 172.

[10] Cf. "The Turpentine Business," North Carolina Farmer, III, No. 10 (March, 1843), 217-218, and the market news of the Wilmington Journal, September 21, 1855.

[11] Wilmington Journal, January 17, 1844.

allowances for defective barrels than were justified, in order to regain a portion of the price they were having to pay. It was probably this continual disagreement between producers and buyers over the amount to be allowed for extra cooperage on defective barrels which led to the enactment of a law in 1843 requiring the inspector to settle such disputes, if requested by either party, by specifying the amount to be allowed, his estimate to be final.[12]

In 1840 the merchants and turpentine dealers of Wilmington attempted to rule out this third quality, and to purchase only on the basis of whether the turpentine was pure dip or pure scrape. Significantly they did not appeal to the law, but merely announced that they

> have come under one general agreement, that all Turpentine of the new crop, or that which may come to market after the 1st April next, will not be purchased by them in any other way than two qualities, i. e. Dippings and Scrapings, or that which is not pure Dippings, shall go at half price. 13

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12 N. C., Laws, 1842-43, ch. 40. By this law the inspector was subject to a fine of twenty-five dollars for refusing to render an estimate. A law enacted in 1829 had named the inspector as the person to settle the disputes, but provided no penalty in case of his refusal. N. C., Laws, 1829-30, ch. 50.

13 Wilmington Advertiser, February 4, 1841. Originally appeared in the February 20, 1840 issue. This agreement was signed by eight dealers. Another notice on April 9, 1840 extended the date on which the new agreement was to take effect to June 1, 1840. This was because not all of the old crop would be marketed by April 1, and the merchants professed no disposition to take advantage of the fact that some of the old crop would be mixed. The new rule was to apply to the new crop only. Wilmington Advertiser, February 4, 1841. Original notice appeared April 9, 1840.

When the first of June arrived, the date on which the new agreement was to go into effect, difficulties arose over the qualities to be designated, the buyers insisting on buying according to the agreement they had entered into, while the sellers wanted the former mode of inspection continued. The Wilmington Chronicle of June 10, 1840, stated that because of these difficulties "sales have been pretty well suspended since the 1st instant." If the dealers won the struggle it was only temporary, for mixed turpentine continued to be marketed after that date.[14]

Dissatisfaction on both sides continued, however, the merchants complaining of the manner in which the turpentine was prepared for market, and the producers dissatisfied with the system of inspection and sale. On September 2, of this same year, 1840, the Chronicle in its review of the market news stated in regard to turpentine: "Makers of this article will find it essential to their reputation to use care in putting it up, as complaints among dealers are frequent."

That North Carolina farmers were not duly concerned about the appearance of their products is evident from a long editorial in the Wilmington Chronicle of August 30, 1843, on the difference in appearance between goods offered for sale in

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14 Wilmington Chronicle, January 31, 1849.

North Carolina compared with those produced in the North.[15]

As the turpentine business increased rapidly in the eighteen forties, the dissatisfaction with the mode of inspection and sale also increased, until finally in December, 1843, a notice signed by forty turpentine makers appeared in the Chronicle:

> In view of the fact that great dissatisfaction exists among turpentine makers with regard to the mode of inspecting that article in the town of Wilmington, the way in which it is disposed of, and the manner generally of conducting the business connected with its sale, leading to the belief that they are not fairly dealt with, it is proposed that a Convention of those who make that article for market be held at some future time, for the purpose of taking such measures as will more effectually protect their interests; whether amendments to the Inspection laws are requisite, or a change in the manner of selling necessary. All concerned are desired to consider the proposition, and interchange their sentiments upon it. 16

This announcement met a hearty acceptance, and on January 10, 1844 the Chronicle carried a notice signed by a hundred turpentine makers that a convention would be held in the Masonic hall in Wilmington on January 25.

Prior to the meeting, however, an article appeared in the Chronicle reviewing the general marketing and inspection situation at Wilmington, in which the author pointed out that

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15 There was no direct reference to naval stores in this editorial, but the editor admonished the country producers that more care should be taken in making barrels for flour, butter, and other products.

16 Ibid., December 20, 1843.

the price paid for naval stores and other articles depended on the reputation of the port from which they were shipped. Norfolk products always commanded a higher price than those shipped from Wilmington because of stricter inspection laws.[17] He added that:

> Naval Stores from this market suffer in value abroad from the same cause. A few years back Naval Stores from Wilmington were quoted in Liverpool at 50 to 75 cents per barrel higher than from any other port in the State, because the Inspection Laws were more rigid and the article stood higher. A few years ago the Inspection Laws were altered to suit a few Turpentine makers in the neighborhood who had a large quantity of mixed Turpentine on hand. Instead of dippings and scrappings it was made to be hard and soft, and the inspectors were required under a penalty of...[100] dollars to inspect in accordance with this rule. The consequence has been that a door has been opened to all kinds of fraud;.... This alteration in the law was taken advantage of by some, who at first probably gained a trifle by it; but the character of the market has been materially injured abroad,....
>
> It is not...the interest of the merchant alone that is consulted in framing the Inspection Laws.... The more rigid they are, the greater the advantage to the producer.--If the article is good, and none but good be permitted to be shipped from the port, the price will be high in proportion.[18]

The writer then pointed out another evil in connection with the marketing of naval stores which time had in a measure sanctioned:

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[17] In 1830, a letter dated St. Barts, West Indies, April 11, 1830, to a Norfolk merchant stated in part: "I have seen no sales of Norfolk inspected Staves, but they are generally worth more than North Carolina,...." Norfolk Beacon, quoted in the Cape Fear Recorder, May 12, 1830.

[18] Wilmington Chronicle, January 17, 1844.

...it is the practice amongst Inspectors of Naval Stores, to act as agents for the makers and sellers. It is illegal and ought to be abandoned. A man cannot act as agent for one party and at the same time a disinterested agent between that party and another. It is a gross violation of the implied independence (of the Inspector) towards either the seller or purchaser. 19

The author concluded by suggesting that the convention take into consideration the amendment of the inspection laws generally.

Unfortunately no record of the convention to be held January 25, has come down, but one of the results was evident from a notice published by John Hall in the Wilmington Chronicle. Addressed to the producers of turpentine, the notice stated "HAVING understood that the Inspectors of Turpentine will discontinue to act as Agents in selling the article, the same being contrary to law. Under these circumstances I am induced to offer my services as AGENT to all makers of Turpentine...."[20]

One inspector, Jesse Bowden, went so far as to resign his office as inspector so he could work freely as an agent.[21] The agency business apparently did not prove as remunerative as the inspector's office, for at the March term of the county court in 1846 Bowden was again appointed a naval stores

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19 Ibid.

20 Ibid., March 20, 1844.

21 Ibid.

inspector.[22] It may be, however, that he intended serving as both inspector and agent, for the inspectors had already resumed acting in the latter capacity by that time.[23] In May of that year, another inspector stated frankly in his notice of appointment to the inspector's office, that he would "always be ready to render the seller any assistance in the disposal of produce."[24]

In 1846 the legislature enacted new regulations concerning the inspection of turpentine, specifying that each barrel of soft turpentine should weigh 280 pounds gross, secured with twelve good hoops; each barrel of hard turpentine secured with ten good hoops, and the barrels marked with an "S" or an "H" according to the quality. The inspector was to make out two bills, one for the seller and one for the buyer, making due allowance to the proper party when the barrels weighed over or under the legal amount.[25]

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[22] Ibid., March 18, 1846.

[23] See a notice by John Hall in the Wilmington Journal, April 3, 1846.

[24] Ibid., September 18, 1846, notice dated May 15, 1846.

[25] N. C., Laws, 1846-47, ch. 57. The Wilmington Journal, February 5, 1847, in commenting upon the law of 1846 relating to turpentine, stated that the weight of a barrel of hard turpentine was to be 240 pounds on the grounds that 240 pounds of scrape was about equal to half a barrel of 280 pounds of dip, and that as scrape usually sold for about half the price of dip the two would have equal value. There was the added advantage that the

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Idea by John Hall in the Virginia Journal, April

September 15, 1846, notice dated May 15, 1846.

1846-47, ch. 87. The Virginia Journal, Web-
commenting upon the law of 1847 relating to
the weight of a barrel of dried tomatoes
barrel of 300 pounds at City, and that

This law was unsatisfactory in that it provided no penalty on the producer in case he did not prepare his naval stores in the manner prescribed. The dealers of Wilmington also objected, because freight was paid on naval stores by the barrel irrespective of the size or weight, and smaller barrels meant increased total freight costs.

Consequently in May, 1847, a month before the new law was to go into effect, the dealers in naval stores in Wilmington drew up their own regulations "founded," they said, "in justice and more in accordance with the customs of other markets," governing the trade at that port. Stating that they knew of no good reason for changing the size and weight of the barrels, and as such would perhaps be inconvenient to the producers, the Wilmington merchants announced their intention to purchase as before, the gross weight of the barrel to be 320 pounds, the net weight 260 pounds. The turpentine was to be delivered in the merchant's yard at the expense of the seller, and since both producer and buyer were interested in the quantity and quality of the products sold, the cost of inspection was to be divided equally between them. In regard to the handling of the products and the condition of the barrels when delivered,

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same barrel which would hold 280 pounds of dip would hold 240 pounds of scrape. However, the law of 1846 actually was silent on the weight of a barrel of hard turpentine. It was not until 1848 that a law was enacted specifying the weight of a barrel of hard turpentine to be 240 pounds and of a barrel of tar to be 280 pounds; the latter to be placed in the same kind of barrel used for soft turpentine. N. C., Laws, ch. 44.

Cf. Cor Laudis, 2nd ed., p. 45.

the merchants stated that

instead of deducting the extra as formerly, 1 cent per bbl. will be deducted for scuttling and packing and 2 cents for each hoop deficient, together with the usual deduction for unmerchantable barrels exceeding the number taken to pack. Purchases made at the Rail Road Depot will be subject to a deduction of two cents per bbl. drayage, thereby placing the sellers per Rail Road on a footing with those by water. These regulations to apply to Tar, only so far as regards expense of rolling, draying, and inspection. The custom adopted in reference to the condition of the barrels it is supposed must be free from all objection, as turpentine put up in perfect order will be subject to a deduction of one cent per bbl. instead of the former rates of extra. 26

The inspectors, however, held themselves bound to inspect according to the law and the following week gave notice to that effect.[27] Whereupon the merchants re-inserted their notice with some alterations, acknowledging that there had been in many cases an unjust inequality in determining the amount of extra charges for putting the barrels in order; and since the law prescribed the quality and condition of turpentine offered for sale, without providing any remedy when it did not measure up to those standards, the merchants had agreed that

...hereafter a deduction shall be made under the denomination of extra cooperage as follows: For scuttling, packing, &c., one cent per barrel, for the first two hoops that may be lacking short of twelve as prescribed by law, one cent each, and for each hoop less than ten that may be short, two cents each, also what other labor may be necessary to put it in the order the law prescribes to be adjudged by the Inspectors, together with the

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[26] Wilmington Journal, May 21, 1847. This notice was signed by eighteen dealers in naval stores, which according to the editor of the Journal was "most of" the buyers in Wilmington.

[27] Ibid., May 28, 1847.

usual deductions for unmerchantable barrels exceeding the number taken to pack. 28

To the original notice of May 23, was also added the following:

We also agree that in future we shall refuse to compromise for fraudulent mixture as heretofore, that we deem chips, straw, billets of wood, limbs, dirt, &c., as a fraudulent mixture, and that we shall abide by the strict letter of the law in all such cases. And whereas it appears that the Inspectors do not consider themselves authorized to make bills otherwise than as prescribed by law, that we will in all cases purchase by the bbl. of 320 lbs. and allow the Inspector to make his bill as the law directs 280 lbs. but that there shall be deducted from the bill one eighth of the amount. 29

The dealers at Washington also found the new law of 1846 "deficient in several important particulars" and in the absence of legislative enactment entered into an agreement among themselves to regulate the trade.

1st. That we will, in all cases, require and exact 280 lbs. gross weight, of each and every description of Turpentine, to constitute a barrel.
2d. That as 40 lbs is ascertained to be the fair average weight of barrels necessary to hold 240 lbs. clean Turpentine, we will, whenever an excess of such weight be found to exist, either by the barrels being unlawfully made; constructed of green or water-soaked timber; or found to contain water, chips, straw, or other foreign substance, require and exact such deduction on them as shall, (as near as possible,) leave to each barrel 280 lbs. of good clean Turpentine.
3d. That as we are entitled to receive Turpentine in good order, as specified by law, we will require and exact a deduction of two cents for each and every hoop deficient; and a proportionate allowance for any barrels that may be otherwise in bad order.
4th. That on all second hand barrels, or those that have been filled a second time, we will require and exact a deduction of ten cents each, independent of any other deduction to which they may be liable.
5th. That for Tar, with similar restrictions to those

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28 Ibid., June 4, 1847.

29 Ibid.

respecting Turpentine, we will require and exact 300 lbs. gross weight, to constitute a barrel. 30

The foregoing regulations were adopted unanimously by the dealers and distillers of Washington, who added that it was not their intention to injure the producers. Rather the latter should bear in mind that as a result of the careless manner in which turpentine and tar had been prepared and delivered at the Washington market, the purchasers had been unable to pay as much for the products as others in neighboring places, where they were put up and delivered in such order as to defy all pretext for fault-finding and deductions. They added that

These regulations and recommendations we trust, if strictly observed by the purchasers as well as the sellers [will] relieve the former from unpleasant and onerous duties; while they will enable the producer to obtain a better price for his articles than heretofore; and establish such a high reputation for our commodities abroad, as they will justly deserve. 31

In adopting 280 pounds as the standard weight for a barrel of turpentine and 300 pounds for a barrel of tar, the Washington merchants were endeavoring to obtain uniformity of barrel size to facilitate stowage aboard vessels. The same size barrel would weigh 280 pounds when filled with turpentine and 300 pounds when filled with tar. There was, however, a

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30 Washington Whig, quoted in the Tarboro Press, June 19, 1847.

31 Ibid.

reason for their acquiescence in the law of 1846 as regards the weight of barrels of turpentine. The law had merely sanctioned the weight of the barrels they had been accustomed to handling, which had always been about one-eighth smaller than the barrels used in the Wilmington market area.[32]

The real reason behind this legal sanction of the smaller sized North County barrel was given by the editor of the Wilmington Journal in commenting upon the law.

> We understand that the law has been formed with a view of bringing, as nearly as possible, the weight of the barrel to correspond with the weight required in New York, and also to make it a general law throughout this State. We think upon the whole it will work well once it gets into operation, for every maker of Turpentine will know at once what he is to receive for his labor, whether his Turpentine be hard or soft. If the barrel should exceed the weight above stated, of course he will get pay for all that is over. 33

In other words, since North County barrels already coincided with the New York legal weight, and since the bulk of the crude turpentine exported from New York at that time was drawn from the North County region, the North County barrel was adopted as the standard size in North Carolina.[34]

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[32] Wilmington Chronicle, June 21, 1843.

[33] Wilmington Journal, February 5, 1847.

[34] The expansion of the distilling business had greatly curtailed shipments of Wilmington crude to New York. In the older North County region where the forests were more exhausted, the industry was conducted on a smaller scale, with fewer large producers and fewer distilleries, consequently more of the total product was marketed in the crude form. No actual figures have

Eventually, in 1849, the Wilmington dealers accepted the smaller barrel as the standard size. The market news of October 17, 1849, gave notice to producers and dealers that "by a late arrangement made here, 280 lbs. will be taken as a barrel, according to the law, and not 320 lbs., as has been the custom. This will prevent many difficulties which arose under the old system."[35]

To indicate the slowness with which changes were generally made in the trade, the New York merchants in 1847 entered into an agreement by which spirits of turpentine was sold by the gallon without any charge for the barrel or cask. Previously an extra charge had been made for the barrel with the privilege of returning it and having the money refunded.[36] It was not until five years later, in 1853, that the Wilmington merchants adopted the New York agreement in regard to spirits of turpentine barrels.[37]

Another point of dispute between the producers and the

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been compiled on the relative amounts of North County and Wilmington turpentine exported from New York, but the statements above are based on reading the New York market news over an extended period, in which among the sales listed there was repeated occurrence of the phrase "barrels of North County for export."

[35] Fayetteville North Carolinian, October 20, 1849.

[36] Wilmington Journal, July 9, 1847.

[37] Ibid., October 4, 1853.

dealers was the payment of inspection fees. The law of 1784 had only by implication named the purchaser,[38] but an amendment in 1791 specifically stated that the purchaser was to pay the inspection fees.[39] The law regulating the inspection of soft turpentine passed in 1846 contained no reference to the question of inspection fees; and the merchants of Wilmington in their agreement had stated that the fees were to be borne jointly by the seller and the buyer, which was apparently the custom. In 1851, a law placing tar under the regulations enacted in 1846 for the inspection of soft turpentine, contained a section which stated that "hereafter it shall be the duty of the purchaser to pay the inspection fees on tar and turpentine."[40] Another law, passed the same year, 1851, specifically stated that the purchaser was to pay the fees for inspecting turpentine "any law or usage to the contrary notwithstanding."[41] Despite these laws on the subject, the seller and the buyer continued to share the cost of inspection until 1855.

In that year another effort was made to stop the inspectors from serving as agents for the producers. The Wilmington Chamber

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[38] N. C. State Records, XXIV, ch. 26, sec. 13.

[39] Martin, ed., The Acts of the General Assembly of the State of North Carolina, Passed during the Sessions Held during the Years 1791, 1792, 1793, 1794, ch. 14, sec. 7.

[40] N. C., Laws, 1850-51, ch. 72.

[41] Ibid., ch. 73.

of Commerce adopted a resolution that sales must be made by the producer himself or by his qualified agent, as the merchants, distillers and dealers had agreed that they would no longer buy through the inspectors. Perhaps to obtain the cooperation of the producers in this effort the merchants finally consented to conform (partially at least) to the law, and resolved that thereafter the purchaser would pay the fees of inspection, which they stated would be one cent per barrel--not the full two and one-half cents allowed by law.[42]

Since the purchasers were now paying the inspection fees, this fact may have served to draw the inspectors closer to them. In 1859 a country distiller charged the inspectors and the merchants in Wilmington with collusion in regard to the inspection and sale of Virgin turpentine. The charges and denials on this occasion reveal much that was customary in the naval stores trade, even when there was no legal sanction for it. The country distiller, in his letter to the editor of the Wilmington Journal, stated that since the new crop had been coming to market the Journal had reported the price of Virgin turpentine to be five dollars per barrel. Every distiller knew how much spirits and rosin could be made from a barrel of Virgin turpentine and he also knew that the net proceeds from those articles,

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42 See notices by John Hall and W. C. Howard, commission merchants, in Wilmington Journal, May 18, 1855.

even if the rosin were of the best quality, would not pay for the crude turpentine. "It is understood by country distillers," he added, "that the price of Virgin Turpentine is thus kept up nominally, by town distillers, for the purpose of injuring them; but that, in fact, none brings this price, it being understood by said town distillers and inspectors that it is to be so closely inspected that the price shall not exceed four dollars."[43]

While this arrangement, the writer said, was well understood by the country distillers who had been informed of it by Wilmington commission merchants, it was not understood by the producers who, having no correspondents in town and no way of obtaining information concerning prices except from the market reports in the papers, had to learn the fact from experience. "The effect of all this is," he said, "to get the Turpentine to town for the benefit of a few distillers, who impose upon producers, and injure the distillers in the country, who have no other way to inspect a barrel of Virgin Turpentine but to make it what it is if merchantable--viz: Virgin Turpentine."[44] The country distiller suggested that in view of the extensive circulation of the Journal in the country and the dependence of a large number of producers on the accuracy of its market reports, that it was the duty of the editor to find out the

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[43] Ibid., May 6, 1859.

[44] Ibid.

correct price of Virgin turpentine and to report it in his columns.

This communication brought forth denials of any collusion from all the inspectors, from the editor of the paper, and from one town distiller and commission merchant. The latter asserted that 2,844 barrels of Virgin turpentine had been sold in Wilmington for that year, of which about nine-tenths passed without any deduction whatever. On the remaining tenth, deductions had been made of from fifty cents to $1.50 a barrel, amounting on the total sales to only $216.75.[45]

The inspectors in denying that there was any collusion between the distillers and themselves, declared that the country distiller made a misstatement when he asserted that none of the Virgin turpentine marketed in Wilmington that season had brought the quoted price of five dollars per barrel. They asserted their ability to prove that each of them had sold Virgin turpentine at that price from the beginning of the season until the preceding week, April 30, 1859. To bring the maximum price, however, "the turpentine...must be a merchantable article--an inferior article is not considered merchantable, and is always subject to deductions." They added:

We will, however, enlighten "A Country Distiller" on the

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45 Ibid., May 6, 1859.

subject of custom, presuming that he ought to be familiar with the law. The law recognizes but two qualities of Turpentine--viz: Soft and Hard. Custom has fixed a price for mixed Turpentine, which is one-fifth of the price of soft. Custom has also affixed a value to unmerchantable Virgin Turpentine, which value is governed by the depreciation sustained by discoloration from burnt boxes, bark or chips, or from dryness. The high prices paid for Virgin are intended for that article of Turpentine that will make pale No. 1 Rosin; and if it does not make such Rosin, it is certainly worth no more than Yellow Dip or Soft Turpentine, for no more Spirits can be obtained, nor better Rosin made from it than from Yellow Dip. 46

The editor, incensed by the insinuations against the accuracy of his price current column, also attempted to refute the charges made by the country distiller, repeating chiefly what the inspectors had said. The price current column of the Journal, however, which had been listing Virgin turpentine at five dollars per barrel, that week dropped the price to four dollars per barrel, and on June 3, it fell to $3.50.

In 1857 the last law relating to the inspection of naval stores in North Carolina during the ante-bellum period was passed. It added spirits of turpentine to the list of naval stores products which the inspectors in the town of Wilmington were required to gauge.[47] This law, too, was only legal sanction for an established practice. The returns which the inspectors

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46 Ibid., May 6, 1859.

47 N. C., Laws, 1856-57, ch. 27. The actual wording of the law was: "That hereafter inspectors of naval stores, appointed for the town of Wilmington, in New-Hanover county, be and they are hereby authorized and required to gauge the article of spirits of turpentine...." The inspector was allowed a fee of five cents per barrel or cask, to be paid by the purchaser.

were required to make to the county court each year indicated that spirits of turpentine had been among the products inspected and gauged as early as 1848-49.[48]

As the distilling business increased it was only natural that spirits of turpentine should come within the pale of the inspection system, especially in the fifties after the distilleries had moved inland and there was less crude turpentine to be inspected. The inspectors were no doubt eager to adopt the inspection of spirits of turpentine to increase their fees, and since pound for pound it was the most valuable of all the naval stores products, it would bear a heavier fee. Due to its volatile nature the buyers wanted all barrels "gauged," which consisted of opening the bung hole and inserting a rod which would indicate the number of gallons the barrel contained.[49]

While there is evidence that rosin was inspected as early as 1852,[50] the inspection laws contained no reference to it, and not until 1857 were returns on the inspection of rosin made

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48 Wilmington Chronicle, March 28, 1849.

49 When a barrel contained less than the legal amount it was replenished from another barrel. Out a lot of one hundred barrels, one barrel might be required to fill the other ninety-nine to the legal amount. See account of sale of 71 barrels of turpentine by John J. Bryan & Company for Allen Grist, October 5, 1837. Grist Collection, Letters, Duke University Library.

50 In June, 1852, Isham Blake, of Fayetteville, advertised himself as having been appointed "Inspector and Guager of Turpentine, Rosin and Spirits of Turpentine." Fayetteville North Carolinian, June 12, 1852.

to the county court.[51] Even then not all the rosin shipped and sold was inspected for the returns were too small to cover the entire shipments for any one year. Except for the first two grades, rosin was so low in value that it would not bear the regular inspection fee.

So far as improving the quality of the naval stores produced and sold in North Carolina the inspection system seems to have contributed little. Actually the laws were in some cases ambiguous, in others no penalties were provided for violations. After the original act of 1784, which was rather outmoded for the later period, there was no systematic revision of the inspection laws. Instead, amendments were enacted for particular situations at Wilmington or Newbern,[52] with the result that eventually the laws on the subject became a hodgepodge, some applying at one port, some at another. The corresponding result was that those engaged in the trade, producers, inspectors and

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[51] The returns were made in June of each year until 1844 when they were made at the March term of the court. For most of the years after 1841 they were printed in the local papers, although there were occasional lapses in the early forties.

[52] In 1843 sections 50-54 of chapter 59 of the N. C. Revised Statutes of 1837 were repealed in so far as they related to Newbern. These sections related to the requirement that the inspectors keep statistics on the amount inspected and give certificates of same; that all naval stores not exported in twenty days be re-inspected; that all custom coopers must brand barrels they sold; that in case of resale or exportation the inspector's certificate must accompany the naval stores sold; and that no master of a ship could take on board any naval stores which had not been inspected according to law. N. C., Laws, 1842-43, ch. 39.

dealers, ignored the laws and devised their own rules and regulations. Inspection did perhaps prevent intentional fraud, which seems to have been the chief purpose of the North Carolina system. Other than that, there seems little reason for having continued it except that the inspector, having a wide acquaintance among the people of the up country, was in a desirable place to make friends and dispense political information. As an office within the gift of the members of the county court, it may have been perpetuated as part of the political system of the day.

CHAPTER XII

USES OF NAVAL STORES

In the days when wooden ships of both sail and steam carried on the commerce of the world, tar and pitch were of vital necessity to shipbuilders. In his volume, Square-Riggers on Schedule, R. G. Albion gives an account of the building of wooden sailing vessels during the nineteenth century, and of the use of tar and pitch in their construction. After the planking had been attached to the ribs of the ship, the cracks were filled with oakum, and pitch was smeared over the outside of the hull to make it watertight. Large quantities of tar were also used in connection with the rigging of the vessels, for they required literally miles of rope of one sort or another. Part of it consisted of what was called the stiff "standing rigging," which braced the masts to hold them in place. The ropes for this rigging were heavily coated with tar to preserve them from decay. The more flexible "running rigging," made of lighter rope, was used for hauling and adjusting the sails. The soundness and durability of the ropes were important, for on some of them men's lives depended, particularly those which

ran along the yards for footholds and used when the sails were being reefed or unfurled.[1] As the sides of the ship above the water line generally received three or four coats of paint, an ingredient of which was spirits of turpentine, considerable quantities of this product were utilized in this operation.[2] Sometimes the decks were also treated with pitch.[3]

From this early use of naval stores the industry acquired its name, although other uses quite unrelated to shipbuilding developed. The new uses came chiefly from turpentine and its derivatives. One of the earliest of these new uses was as a solvent for caoutchouc, popularly known as India rubber. During the eighteen thirties the newspapers contained many references to the phenomenal growth of the rubber industry and the many uses to which rubber had been applied.[4]

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[1] Albion, Square-Riggers on Schedule, 94-95; Rise of New York Port, 293-294. Until 1812 hemp cables were used for raising and lowering the anchors of a ship, and these also were treated with tar. A 1,000 ton vessel required a hemp cable eight inches in diameter. In 1812 the smaller and stronger iron chains were substituted to save storage space in the hold. E. K. Chatterton, Ships and Ways of Other Days (London, 1924), 279.

[2] Helen La Grange, Clipper Ships of America and Great Britain 1833-1869 (New York, ca., 1936), 345.

[3] Howard I. Chapelle, The History of American Sailing Ships (New York, 1935), 376, 379.

[4] For a description of a visit through a recently established rubber manufacturing plant in Boston in 1834, see an article published in the National Intelligencer, quoted in Farmer's Register, II (December, 1834), 414-415.

In 1835, the New York Star gave a list of twenty-five or thirty articles manufactured from rubber, and remarked "It is incredible to what numerous useful objects this invaluable article is now applied."[5] In 1830 England imported "more than fifty-two thousand pounds of caoutchouc...nearly double the quantity brought during the preceding year." This increase in the demand was stated to be due to the "application of the substance as an article of general utility."[6] By 1840 it was selling in England as high as ten to fourteen shillings per pound when spun into thread, and it was stated that "one firm spins as much India-rubber thread every week as would reach from London to Canton, the country it is imported from."[7]

In the eighteen fifties it was discovered that by mixing coal tar with rubber a hard rubber could be obtained. The Boston Journal described this new product as resembling "polished stone, as black as coal,...and has...as hard and exquisite a polish as it is possible for any metal to bear," and added that "there seems to be no end to the articles to which it can be made...."[8] As the rubber industry developed, the demand for

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[5] New York Star, quoted in Tarboro Press, February 14, 1835.

[6] London Penny Magazine, quoted in Southern Agriculturist, IX (May, 1836), 264-266.

[7] Southern Cabinet, I (October, 1840), 640.

[8] Boston Journal, quoted in Southern Planter, XVI (November, 1856), 350.

spirits of turpentine increased to such an extent that in 1859 it was estimated that "from two to three hundred thousand dollars worth is consumed annually in the American India-rubber manufactories."[9]

Another of the new uses which enormously increased the demand for spirits of turpentine was as an illuminant. This was, for a time, probably its most important single use. Throughout the ante-bellum period experiments were made with various types of oil in search of one which would furnish the greatest illuminating power at the least cost, had a pleasant odor when burned, and was not likely to explode. There were oils and burning fluids which satisfied any one of these prerequisites, but none which met all of them. Tallow-dipped candles and lamp oil were not very satisfactory, and sperm candles were too expensive to be generally used. The newspapers and periodicals of the period carried frequent notices of the discovery of new substances which were described as affording reliable and economical light. During the thirties experiments were made with cotton seed oil,[10] an oil derived from corn, linseed oil and other substances, most of which proved generally unsatis-

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[9] Southern Cultivator, XVII (June, 1849), 172.

[10] Cape Fear Recorder, November 4, 1829. See also Tarboro Free Press, June 20, 1834; Southern Agriculturist, VIII (February, 1834), 106-109; American Cotton Planter, I (June, 1853), 181; North Carolina Planter, I (November, 1858), 331.

factory.[11]

About 1841 an oil derived from lard was introduced as a fuel for lamps, and for a time it was in fairly extensive use. In 1842 the Cincinnati Republican gave an account of the extent of lard oil production and use, stating that there were in operation in Cincinnati "three factories which consume daily from 12 to 20 barrels of lard. The oil...has already attained a high degree of excellence and popularity, and is not only extensively used, but it is shipped East every week...."[12]

During 1842-43, there were numerous references to the use of lard oil as an illuminant and for lubricating machinery. In July 1843, the Pittsburgh Gazette stated that: "This new branch of business bids fair to become one of vast importance to the west, and it is thought by some will soon be second only to the manufacture of flour. Lard oil factories are springing up in most western towns, and...rapidly superseding the production of the fatty monsters of the deep." The oil was described as "almost as clear as water,...burns with great brilliancy, and is

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[11] Southern Agriculturist, VIII (December, 1835), 647, X (May, 1837), 273. Southern Cultivator, II (June, 1844), 103. See also Southern Agriculturist, XI (February, 1838), 97-98, which mentions in addition to experiments with corn oil, experiments with linseed, hemp, and sunflower oils.

[12] Cincinnati Republican, cited in Raleigh Star, quoted by Tarboro Press, July 2, 1842. A description of the process of making elaine and stearine from lard to be used for lamp oil and candles is given in Southern Agriculturist, new series, II (July, 1842), 395-397.

devoid of noxious smell and smoke.[13]

While the lard lamps gave satisfactory light, in cold weather it was difficult to maintain the lard in a liquid state. Hence they were generally unable to compete with camphene lamps, although they continued to be used to a limited extent throughout the period. Those who were afraid of explosions preferred their inconvenience in cold weather to the dangers of camphene lamps in all weather.[14] The editor of the Wilmington Journal, however, labeled the lard lamp "a perfect humbug."[15]

Sometime prior to the introduction of the lard lamp, the use of spirits of turpentine for lighting was introduced. As early as 1833 the American Farmer gave an account of the use of castor oil united with spirits of turpentine as a fluid for burning in lamps. This mixture, the Farmer said, had been discovered by Isaac Smith, of Northampton county, Virginia, and had been in use by him for five years.[16] In 1834 an article in the Southern Agriculturist, published at Charleston, South Carolina, gave an account of the introduction of rectified oil of turpentine in combination with alcohol as an illuminant, which

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[13] Pittsburgh Gazette, quoted in Wilmington Chronicle, July 12, 1843.

[14] Southern Cultivator, II (August, 1844), 123; III (March, 1845), 41; X (April, 1852), 102.

[15] Wilmington Journal, August 13, 1848.

[16] American Farmer, quoted in Southern Agriculturist, VI (December, 1833), 664.

like the other substances used for lighting was not altogether successful at first.[17]

Improvements continued to be made in the lamps, however, and by 1842 they had come into fairly general use. Notices and advertisements of the lamps and the fluid for burning in them became more frequent after that date.[18] In 1843 a government report stated that camphene lamps were in extensive use, improvements having been made which rendered them less dangerous, although the liquid itself could not be handled with too much caution. "They are preferred by many who have a strong aversion to the use of oil in any shape, and give a strong, pure white light." This camphene oil, also called pine oil, was highly rectified oil of turpentine, obtained by a variety of processes but usually by repeated distillation.[19]

Other improvements were made and despite its inflammable nature and the frequent serious accidents, its use spread. In 1846, B. Murphy & Company, of Philadelphia, called the attention of the citizens of Wilmington and of the state:

to their improvement in the Camphine Lamp, which warrants them in saying that for half the money they will give double the

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[17] Southern Agriculturist, VII (October, 1834, 530-535.

[18] Wilmington Chronicle, December 7, 21, 1842; February 8, 1843. They were usually referred to as "Carr's patent Camphine Lamps."

[19] United States Patent Office, Annual Report , 1843, pp. 328-330.

light of any Oil or Lard Lamps yet invented. These lamps are especially worth the attention of Trustees of Churches, Halls, and of Public Buildings in general, that require to be well lit. They manufacture every variety of Lamp...varying in price from $1 50 to $6. 20

As evidence of the increasing use of spirits of turpentine for lighting, the New York market news of January 1847, noting the scarcity of spirits of turpentine in the local market due to unusually light shipments from the South, stated "The quantity of Camphene used for burning has become so great, that for this purpose alone, a large supply is needed, and any considerable diminution in the receipts is immediately felt."[21] The following year, 1848, the Scientific American in an article on the production and use of turpentine stated "The consumption of this article is increasing vastly--much beyond the general calculation and belief. One principal source of this increase is in the use of distilled spirits of turpentine, known under the name of Camphene, and is used in the place of oil in almost every family."[22]

In 1847, the editor of the Fayetteville North Carolinian gave a local camphene manufacturer a boost by a personal testimonial to the efficiency of his product.

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[20] Wilmington Journal, September 18, 1846.

[21] Ibid., January 22, 1847.

[22] Scientific American, quoted in Tarboro Press, May 13, 1848.

Mr. Thomas Smith has erected a Camphine Distillery, which is now in operation in this town, from which we have seen and used the very finest specimens of that article. It gives a more brilliant light, does not flare up, burns longer than the spirits heretofore in use--and hence is a great saving, as it is afforded at the prices paid for the inferior article. We have found one gallon to supply the consumption of a gallon and a half of the common kind. 23

The following year, the editor called attention to the virtues of camphene as an illuminant.

These lamps...give more light than three or four candles, are decidly [illegible] cheaper than any light that can be burned, except the lardlight, which has its difficulties.
We are anxious that the Turpentine light should be introduced more extensively, because it is cheap, and because it is here among our own people, from materials on our own soil....
Many are deterred from using them or [illegible] account of the danger [illegible]dangers. We really have not yet experienced any danger from them, and we have been using two of the lamps in our family, more than 12 months. 24

The original disadvantage to using spirits of turpentine (camphene) as an illuminant was the odor it gave off upon being burned, and its tendency to smoke. To overcome this, alcohol was added, and while it reduced the amount of smoke, the mixture, known as "burning fluid," was more volatile and dangerous than "camphene." The brightest and best of these fluids was called phosgene gas, which differed from burning fluid in that the water had been removed from the alcohol so that it would combine

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23 Fayetteville North Carolinian, January 16, 1847. This distillery was destroyed by fire the following May. Wilmington Journal, May 28, 1847.

24 Fayetteville North Carolinian, March 4, 1848.

with a greater amount of camphene.[25] Although highly inflammable, none of the substances were in themselves explosive; but a mixture of the vapor of these liquids with air was highly explosive, and often it became ignited by a spark and set fire to the liquids themselves.[26]

Properly handled, there was little danger from the use of these several types of burning fluids, but due either to ignorance concerning their volatile and inflammable nature, or to carelessness, accounts of camphene accidents were frequent. The Petersburg Democrat, in 1851, gave an account of a fatal accident which occurred from the incautious use of a camphene lamp.

> We record another distressing accident from the use of camphine. About a fortnight since, Mrs. Ennis, residing in Chesterfield county, near Petersburg, accidently ignited a lamp of camphine which she held in her hand. She was instantly enveloped in the flames, and although hurt most severely, she lingered until the day before yesterday.... Is it not downright insanity to use camphine and its kindred "fluids?" [27]

So numerous did accidents from camphene lamps become that the Wilmington Journal printed a long article on the characteristics of camphene and kindred substances, their advantages as a

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[25] Newark Advertiser, quoted in Wilmington Journal, April 30, 1852.

[26] "Turpentine and Its Uses," Southern Cultivator, XVII (June, 1859), 172.

[27] Petersburg Democrat, quoted in Fayetteville North Carolinian, August 16, 1851.

means of light and the necessary measures of precaution to be taken in connection with their use. The author of the article stated that

> ...very unfavorable and unjust views are entertained by many about the common burning fluid, now much in use as fuel for lamps.... The great error now in the community is a supposition that it will explode dangerously. The danger is not in any explosion....
>
> The real sources of danger may easily be avoided if once they are pointed out, and then there can be little or no objection against the use of these really good articles--so far superior to oil in cleanliness, and handiness, and pleasantness of light. 28

The author explained that as the fluids were not in themselves explosive, the only way in which injury could result was in spilling the fluids in a burning state over things that easily caught fire. The spilling, he said, generally took place in two ways. The sudden shaking of a glass lamp filled with the fluid would cause it to overflow, catch fire from the wick, and run down the outside in a burning state. The heat of this flame would crack the glass causing the fluid within to flow out in a devouring flame. The shaking occasioned by a person walking with a lighted lamp was sufficient to cause such an accident if the lamp were full and the wicks not tight.

The other mode in which most camphene accidents occurred was in refilling the lamp from a can while the wick was still

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28 Newark Advertiser, quoted in Wilmington Journal, April 30, 1852.

burning. Fire from the wick communicated to the can by means of the vapor arising from the fluid, frightening the person into dropping both can and lamp, thus spreading the flames in every direction. An example of this type of accident in which three women were severely burned, appeared in the North Carolinian. "Two of them were engaged in filling a lamp from the can, one of them holding a lighted lamp, it is said, at a considerable distance from the lamp which they were filling. By some means--undoubtedly by a stream of gas from the fluid--the flame of the lighted lamp was communicated to the can, which caused an immediate explosion."[29]

In July of the same year, the Wilmington Journal recorded another accident resulting from the careless handling of a camphene lamp and commented:

> Camphine Lamps never explode, and we never knew an accident from them unless it was caused from carelessness in trimming, or filling up when burning. We prefer the camphine light to any we have ever used, but at the same time, if they are not properly trimmed, and kept perfectly clean, they are dangerous.[30] No person should use them unless they are kept in perfect order.

Accidents became so numerous that in 1853, an item in the North Carolina Standard stated, "It is proved by statistics, although it seems perhaps hardly probable, that more deaths and serious

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[29] Boston Traveller, quoted in Fayetteville North Carolinian, September 4, 1852.

[30] Wilmington Journal, July 9, 1852.

accidents, annually occur from the use of 'burning fluid' in the United States than from steamboat explosions and railroad accidents combined."[31]

Late in 1852, an improvement was made in the fluid lamps which somewhat mitigated the number of accidents resulting from their incautious use. This improvement was called Newell's Patent Safety Lamp, and consisted of an adaptation of the safety lamp used by miners, which kept the flame out of contact with vapor arising from the fluid. Newell also invented safety cans and fillers which would permit the refilling of a lamp while it was burning, without danger of explosion.[32] The number of accidents from burning fluids decreased somewhat after the introduction of this improvement. The editor of the Wilmington Journal gave a personal testimonial to its efficacy in overcoming the danger of the former lamps.[33]

Burning fluids were sold by distillers, by merchants and druggists in the towns, and in the larger cities it was dispensed by wagons calling from house to house.[34] In 1849, A. H. Van Bokkelen, a distiller in Wilmington, advertised that he had "pine oil" for sale at the store of S. P. Polley, and that

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[31] Raleigh North Carolina Standard, February 2, 1853.

[32] Plough, Loom and Anvil, V (December, 1852), 379-380.

[33] Wilmington Journal, June 30, 1854.

[34] Baltimore Sun, quoted in Wilmington Journal, December 21, 1855.

deliveries would be made to customers regularly on Tuesdays, Thursdays and Saturdays.[35] Camphene lamps were used in homes, business establishments, hotels, and all types of public buildings where a strong light was needed. It was sometimes used on trains,[36] and was even used to supply the necessary heat for hatching eggs, by artificial incubation.[37]

In the latter part of the eighteen fifties camphene was replaced in part by "adamantine candles," because of their good lighting power and small accompanying hazard,[38] and also by kerosene which was manufactured from coal. The latter was particularly recommended for burning in lamps, since it eliminated the danger of fire and explosion so common to the camphene lamps.[39]

In 1859, the editor of the Fayetteville Observer stated that the use of kerosene oil for light and for machinery was limited only by the capacity of machinery in operation to produce it. "It supersedes," said the Observer, "candles, sperm

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[35] Wilmington Journal, September 26, 1849.

[36] Ibid., November 25, 1853.

[37] American Agriculturist, quoted in Southern Cultivator, V (September, 1847).

[38] Sprunt, Chronicles of the Cape Fear River, 1660-1916, second edition, 162.

[39] Southern Cultivator, XVI (June, 1858), 185. North Carolina Planter, I (May, 1858), 160.

oil, camphene, and spirit fluid, being cheaper than any of these, even at the present advanced price, and safer than the two last."[40]

In addition to its widespread use as a burning fluid, and its growing use in the rubber industry, spirits of turpentine was also used to a considerable extent as a thinner in the paint and varnish industry, in printing, and for its medicinal properties. The agricultural periodicals of the period contained many references to its use on farms and plantations as a domestic remedy. It was administered to the stock, fowls and swine of the plantation, both externally and internally. It was also used as an insecticide in ridding houses and barns, fowls, animals and fruit trees of unwanted insects. Because of its cleansing properties, it was used as an ingredient in various mixtures for washing clothes or removing grease spots. When boiled with beeswax, it could be used for water-proofing clothes, tents, or the covering for wagons. Candle wicks dipped in spirits of turpentine and dried before being placed in the candles, made them yield a much clearer and brighter light. It was, of course, as were all types of naval stores, used as a preservative of wood, leather and other substances liable to damage through exposure to dampness and weather.

In 1855, an article appeared in DeBow's Review, which gave

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[40] Fayetteville Observer, quoted in North Carolina Planter, II (March, 1859), 95.

, quoted in Lloyds Weekly London Journal,

a brief account of some of the uses of spirits of turpentine and the quantity consumed, and the possible future demand for the product:

> The amount used in painting the four millions of dwelling-houses in the United States, or the exceeding great amount of this together with other naval stores, used in painting and preserving our vast shipping and steamboat marine, your committee have no means of correctly stating. The amount of spirits used in the printing business, (there being 2,800 presses in this country, at a pint per day each,) at a low estimate 2,000 casks, containing 112,000 gallons. The manufacture of India rubber, (but yet in its infancy,) consumed 4,650 casks, containing 187,000 gallons; this business, it is estimated by those conversant with the subject, will, in the course of five years, increase to the amount of $15,000,000; in importation of the raw material of caoutchouc it reaching now the sum of $5,000,000.
>
> The extent of its use in gas, camphene, burning-fluid, and for chemical and medical purposes in this country, and the exact amount exported for foreign consumption in these and various other branches of manufacture, your committee have no correct data upon which to base an estimate....[but] under no circumstances can the price fall below 30 cents per gallon, for in that event it will be used to an unlimited extent in the production of gas;....41

In regard to rosin, the largest use was at first in the manufacture of soap. The finest grade of rosin, called pale or number one, was used in making white soap, while large quantities of common rosin were used in the manufacture of a cheaper grade, known as yellow soap. The rosin added little to the usefulness of soap, other than increasing the bulk. Commercially, however, it amounted to from twenty-five to thirty-five, and in some

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41 DeBow's Review, XVIII (February, 1855), 188-191.

cases to fifty percent of the bulk of the soap.[42] Rosin was frequently included in domestic recipes for making soap on the farms and plantations.[43]

As a result of the increased demand for spirits of turpentine, the lower grades of rosin were over-produced as a by-product, and during the late forties and fifties attempts were made to find new uses for it. Among the efforts in this direction was an attempt to develop a burning fluid and lubricating oil. In 1851, the Fayetteville North Carolinian printed an item communicated to it from Wilmington which said:

> The reader will recollect that a week or two ago, there was an article in the Carolinian about a discovery that has been made in regard to making oil from rosin; an oil that will burn beautifully in a lamp, and that will answer all purposes for which sperm oil is used. Should this be so, it will be better than the discovery of a gold mine in North Carolina.... The discoverer says he can produce 60 gallons of oil from every one hundred gallons of rosin. 44

This rumor of a new discovery proved to be true. The

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[42] Daniel Lee, "The Art and Principles of Soap-Making," Southern Cultivator, XIV (May, 1856), 164-165. For the higher estimate of the amount of rosin used in the manufacture of soap, see DeBow's Review, XVIII (February, 1855), 188.

[43] A recipe for making home-made soap specifying six pounds of potash, four pounds of lard and four pounds of rosin, all of which could be purchased for $1.50, is given in Southern Cultivator, XIV (January, 1856), 19. There were innumerable similar recipes for making home-made soap using rosin or turpentine.

[44] Fayetteville North Carolinian, March 15, 1851.

distillation of rosin produced two oils, the lightest of which, called rosin spirit or pinoline, was used as an illuminant. In 1855, an article on the future of the turpentine industry stated that a considerable amount of rosin was used "in the lighting of cities and private residences,...the capital [sic] of the United States, and some of the best hotels,...being lighted exclusively with a gas made from it."[45]

The heavier of the oils, usually called rosin oil, was fairly extensively manufactured in the decade of the fifties, and used chiefly for lubricating purposes and in the manufacture of printing inks. In January, 1852, the editor of the North Carolinian brought to the attention of local business men the possibilities in the manufacture of rosin oil. The indications were strong, he said, that the manufacture of this oil was rapidly becoming an important branch of industry. Manufacturing companies at Lowell, Massachusetts, had recently made experiments to determine whether or not rosin oil could be successfully used as a lubricant for machinery. The result was that upon looms and other machinery of heavy bearings less power was required when a mixture of rosin and sperm oil was used, than when pure sperm oil was employed. Since the mixture was not inflammable, it could be safely used on machinery. The demand for the oil was gradually increasing, said the editor, as its

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45 DeBow's Review, XVIII (February, 1855), 190-191.

utility became every day more extensively appreciated. "We do not," he added,

pretend to much knowledge on this subject; our design is simply to call the attention of business men in our midst to what may eventually turn out to be an immense source of wealth to our section of country. Ours is the region of the evergreen pine, and as it has been found profitable to distil our raw turpentine in the woods where it is made, thus saving the cost of transportating [sic] it to a distance for distillation, may it not for the same reason be found economical to distil our rosin here at home? This is a subject deserving, we think the attention of practical business men. 46

A few weeks later the editor printed an article, contributed to the Washington Union, on the possibilities inherent in the manufacture of rosin oil, under the caption "A New Business Era for North Carolina":

We perceive, from exchanges published in various sections of the country, that...North Carolina's staple (rosin) is rapidly coming to supplant animal oil entirely for the purpose of lubricating machinery of every description. The railroads already constructed in New England...the woolen, cotton, flouring, and saw mills, factories, and workshops,...with which the eastern States are studded, consume an incalculable quantity of sperm and whale oils, which are now becoming so scarce, and of course comparatively expensive.... It has been made manifest that one-half less power is requisite to drive heavy machinery lubricated with a mixture of this rosin oil with its bulk of sperm oil, the mixture costing but three-eighths of the price of the sperm required when used alone. Now, when we estimate the saving thus effected not only in the cost of the material, but the advantages to result from the saving of power required when the mixture is used, it will be perceived that one of the most important industrial results known to the present century is being brought about. Its effect on the value of the property and

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46 Fayetteville North Carolinian, June 19, 1852.

labor in the pine-bearing regions of North Carolina and Georgia cannot fail to be wonderful indeed. 47

The production of rosin oil increased greatly during the fifties, although until the latter part of the decade the larger factories were chiefly in the North. Newbern, North Carolina, had a plant as early as 1849,[48] and at Wilmington a rosin oil factory was destroyed by fire in 1853.[49] The newspapers in the early fifties contained several references to the construction of plants in other sections of the country.[50]

The development of the manufacture of rosin oil in the South in the late fifties was evident from a brief notice in the Arator in 1857.

> This is a new development of one of the many important resources of the South, which the lack of inquiry and enterprise have long suffered to remain in abeyance. A company has been formed in New Orleans, called the "Louisiana Oil Company," which, ...manufactures a valuable oil from Rosin; and another company, we learn from the same source, now in process of final organization in New Orleans, called "the Southern Oil Company," embraces five of the most productive pine growing States of the

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47 Washington Union, quoted in Fayetteville North Carolinian, July 31, 1852.

48 Newbern Republican, quoted in Tarboro Press, January 27, 1849.

49 Wilmington Journal, March 25, 1853.

50 Wilmington Journal, May 7, 1852, mentioned large establishments being erected in Chester and Philadelphia, Pennsylvania. See also, ibid., January 7, 1853, and ibid., quoted in Tarboro Press, April 5, 1851.

South--North Carolina, South Carolina, Georgia, Alabama, and Mississippi.[51]

In 1860, the Mobile Advertiser reported that a new process for manufacturing rosin oil had been discovered. It eliminated the expensive and cumbersome bleaching process leaving "a pure and beautiful oil...which remains unchanged after exposure to the atmosphere." The discovery had been made by Silas Constant, of Brooklyn, New York, one of the oldest manufacturers of rosin oil. The Advertiser commented: "As the manufacture of oil from rosin has become an important branch of Southern products, a discovery which cheapens its production and improves its quality, is of much importance."[52] The Advertiser added that a factory was to be built at Mobile by a group of Baltimore capitalists as soon as arrangements could be completed. The census of 1860 listed three establishments in the South, at Newbern, at Mobile, and at New Orleans.[53]

Another of the uses discovered for rosin was in the manufacture of gas for lighting. As early as 1835 it was used for

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[51] New Orleans Crescent, quoted in Arator, III (April, 1857), 734-735. The Southern Oil Company had a factory in operation in Mobile by September, 1858. See advertisement in Mobile Daily Tribune, September 10, 1858.

[52] Mobile Advertiser, quoted in the Columbus, Georgia, Daily Sun, May 3, 1860.

[53] United States Bureau of the Census, Eighth Census of the United States, Manufactures, III, passim.

this purpose in Northern cities,[54] but rosin gas did not become common in Southern cities until the eighteen fifties. In 1846 the Charleston Gas Light Company was incorporated by the legislature of South Carolina and authorized "to manufacture, make and sell gas, to be made of rosin, coal, oil, turpentine, or any other material or materials, and to furnish such quantities of gas as may be required in the City and Neck of Charleston,...."[55] In 1852 similar authority was given to the Columbia Gas Light Company to supply the city of Columbia, South Carolina, with gas made in the same manner;[56] in 1860 the Greenville (South Carolina) Gas Light Company was incorporated.[57]

In February 1849, the editor of the Wilmington Chronicle

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[54] On January 14, 1835, the Peoples Press and Wilmington Advertiser carried an account of a fire in a Northern city which began in an organ factory and spread to a near-by gas plant. The fire communicated to a shed containing 2,000 barrels of rosin, which, upon igniting, increased the intensity of the flames. The firemen made no effort to put out the fire at the gas plant, whereupon the director of the plant ordered the workers to separate the burning barrels of rosin from the others, and to form a bucket brigade for putting out the fire. By accident or otherwise "one of the gas men threw a bucket of water over a fireman, and then commenced a general and most disgraceful conflict...cin which: the various apparatus of the works were destroyed; the 'pressure veins' which convey the melted rosin from the coppers to the retorts, torn off, and thus the whole mass set in flames."

[55] S. C., Laws, 1846, p. 418.

[56] S. C., Laws, 1852, pp. 184-186.

[57] S. C., Laws, 1860-61, p. 883.

inquired why Wilmington could not be lighted with gas:

> Certainly there is no lack of material to manufacture it from. We have no doubt that as much rosin is thrown away or allowed to run to waste, by our turpentine distillers, as would be required to make Gas enough for the whole town. And this rosin could be had for nothing. We are informed that in Northern towns of the size of Wilmington, where the material for the manufacture of Gas has to be well paid for, it is a good business to furnish the streets and houses with the article. Why should it not be made such here, under much more advantageous circumstances as regards procuring the material for the manufacture? [58]

The Wilmington Gas Light Company was incorporated by the legislature in 1851, but it was not until 1853 that the Company was organized and active steps taken toward supplying Wilmington with gas lights. By that time, McConnell's machine for roasting pine wood in ovens to produce tar and gas had been invented, and it was adopted by the company for the manufacture of gas.[59] The new method of lighting was introduced into Wilmington in May of that year, but due to the difficulty of maintaining sufficient pressure in the mains, was not in successful operation until December.

Apparently the new gas from wood was not entirely satisfactory, as gas manufactured from rosin was also employed. In

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[58] Wilmington Chronicle, February 7, 1849.

[59] Wilmington Herald, February 9, 1853. Since tar was made in the same operation of deriving gas from the wood, this by-product could be sold and the company's expenses of operation reduced.

December, 1853, the editor of the Journal stated that "the new Gas, which has been in use for some days,...burns beautifully, and is equal, so far as we can judge, to any that we have seen--at the North or elsewhere. We anticipate no further difficulties with it."[60] The following week the Journal stated that "The gas supplied by the Company is of very superior quality. It is stated upon good authority, that 1000 feet of rosin gas--the kind used--will produce as much or more light than 2000 feet of coal gas."[61]

While the light supplied seemed to give satisfaction, there was some complaint concerning the price charged for the gas. In January, 1854, the Journal said it had received several communications on the subject, contending that the price for the gas was too high and "out of all proportion to the expense of lighting with camphine." "It would appear," said the Journal, "that the price--$7 per thousand--is the same rate with that charged in Macon, Augusta and Columbia for Rosin Gas," and added:

> It is a mistake to suppose that light, under any circumstances, can be produced as cheap from gas as from camphine. Experiments made some years since in Philadelphia, where the rates of Gas are lower than at any point in the United States, demonstrated the fact that the same amount of light can be produced from camphine for some 20 per cent less than from Gas. The greater convenience is cofi cleanness, absence of trouble, and freedom

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[60] Wilmington Journal, May 27, December 23, 1853.

[61] Ibid., December 30, 1853.

from accidents must commend gas, and not its greater or even equal cheapness. 62

A summary of the uses to which rosin was applied, as well as an estimate of the quantities consumed, were given in an article in DeBow's Review in 1855 which stated:

...an immense amount of rosin is used in the manufacture of rosin oil, the amount of 86,000 barrels being converted into this article in one factory alone in the city of New York. A similar amount, nearly, (say 24,000 barrels,) being converted into this oil in the State of North Carolina, besides a large amount at Norfolk and various other factories in the United States;.... The consumption of rosin in the lighting of cities and private residences, also affords an outlet for a very considerable amount;.... The extent of the soap-making business... is a source of the greatest consumption, and yet the largest portion of this article consumed seems, from the shipments abroad, to enter into the manufactures of foreign countries. 63

Lampblack was another product derived from rosin, produced by the imperfect combustion of the rosin in furnaces. By limiting the amount of air during the burning process, large quantities of smoke or carbon were thrown off and collected on sacking hung up for that purpose; from which it was swept off and sold without further preparation.[64] From the standpoint of color and

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62 Ibid., January 13, 1854. The Company almost immediately lowered the price to six dollars per thousand feet.

63 DeBow's Review, XVIII (February, 1855), 188-191.

64 Francis P. Porcher, Resources of the Southern Fields and Forests (Charleston, 1863), 497-501. The lampblack in this condition contained some oil from which it could be separated by heating it to redness in a closed vessel. Turpentine could also be used for making lampblack. Ibid., 497. In 1843 a machine

minuteness of division, lampblack made from rosin oil was of the highest quality. The finest grades were used in India ink, and in lithography.[65]

In addition to these uses rosin, like spirits of turpentine, had a number of domestic uses, chiefly as a preservative. It was used in water-proofing leather, particularly boots and shoes, as an ingredient in shoe polish, in sealing wax for hermetically sealing cans of fruit, and in many other ways.

Tar, likewise, found many uses on the plantation, aside from its traditional uses in shipbuilding. It was used on farms as axle grease for wagons, and in making cheap tar paper or composition roofs. One recipe for the latter consisted of eight gallons of common tar, two gallons of cement, five pounds of rosin, and three pounds of tallow, to be boiled and applied, while hot, to the paper on the roof. White sand was then sifted over the warm tar, and when the tar had cooled, the process was repeated. Thereafter a coat of tar once in five years was said to be sufficient to preserve the roof.[66] In addition, it was

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was invented for manufacturing and refining lampblack from rosin in one continuous operation. United States Patent Office, Annual Report, 1848 (Washington, 1848), 75.

[65] Schorger and Betts, "The Naval Stores Industry," United States Department of Agriculture, Bulletin, No. 220 (1915), 10.

[66] Southern Agriculturist, new series, II (January, 1842), 54-55.

used to preserve fence posts and other wood from decay, to keep insects from trees, to apply to the wounds of trees and animals, and for tarring seed corn and wheat to prevent birds from consuming it before the seed had time to sprout and grow. Charcoal, a by-product of the manufacture of tar, was used chiefly as a fuel, particularly by blacksmiths, but it was also used as a polisher, purifier, and as the basis of black paint and varnishes.

In 1863 Francis Peyre Porcher, a surgeon connected with the Confederate Government, by order of the Surgeon-General at Richmond, wrote and published a volume called Resources of Southern Fields and Forests in which he listed a variety of ways in which turpentine and related products of the pine entered into plantation and domestic economy. Referring particularly to its medicinal properties, he stated that "Turpentine is now one of the most universally employed remedial agents," and added that it could be used as "An external rubefacient, a stimulant, an astringent, a stimulating diuretic and laxative."[67]

These minor uses of turpentine, spirits of turpentine, rosin and tar were of a more or less local and domestic nature, and only small quantities were used in this way. The chief uses of naval stores were in shipbuilding; in the paint and varnish industry; in the manufacture of soap, as a solvent for

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[67] Porcher, Resources of Southern Fields and Forests, 496, 499.

rubber; in the preparation of inks and in printing; for lubricating purposes; and as an illuminant in the form of oils or gas.

CHAPTER XIII

DEVELOPMENT AND EXPANSION, 1789-1840

Naval stores were produced in virtually all the North American colonies in the early Colonial period, but they did not assume much importance in export trade until after 1705. In that year the English government, in an attempt to free itself from dependence on the Baltic countries for its supplies of tar and pitch, encouraged the Colonial industry by enacting a law granting bounties of four pounds per ton for tar and pitch, and of three pounds per ton on rosin or turpentine.[1] As a result of this encouragement the industry grew rapidly, particularly in New England, and after 1713 in the Carolinas. South Carolina especially produced large quantities, shipping to New England and to the West Indies as well as to Great Britain. Production was so large that the heavy shipments in 1719 far

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[1] The reasons leading to the enactment of this law granting bounties to encourage the industry, as well as a brief sketch of the industry as it related to the English mercantile system from 1705 to 1776, is given by Justin Williams, "English Mercantilism and Carolina Naval Stores, 1705-1776," The Journal of Southern History, I (May, 1935), 169-185.

exceeded requirements, and England had to re-export to Holland. To remedy this, a new law in 1721 specified that all tar to qualify for the bounty must be made according to the Swedish manner--from green wood rather than from dead wood. In 1724 the law granting the bounties expired, and they were not restored until 1729 at which time they were substantially reduced in amount.[2] The industry in South Carolina declined, and the planters of that Colony turned their attention to the production of rice and indigo.[3]

In North Carolina the industry took a different course. As late as 1720, when the South Carolina industry was at its height, North Carolina had exported only 6,000 barrels of naval stores, shipped via New England to Great Britain. By 1753, North Carolina exported 85,012 barrels, while South Carolina exported only about one-fourth as much. The different course of the industry in North Carolina is explained by several factors. In the first place, lumbering and other woodland products were not subject to the keen competition of other staples. The soil was also poor, except in the river bottoms, and hence the manufacture of naval stores was a more remunerative employment than

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[2] This law allowed the old bounty of four pounds per ton for tar made from green wood, but only two pounds and ten shillings for common tar. The other bounties allowed by this act were one pound on pitch and one pound and ten shillings on turpentine, with no bounty allowed on rosin.

[3] Lewis C. Gray, *History of Agriculture in the Southern United States to 1860*, reprint edition (New York, 1941), I, 152-157.

United

agriculture.[4] But the main reason lay in the fact that whereas in South Carolina it had been principally a means of employing plantation labor in winter, in North Carolina it was carried on chiefly by small farmers living in the pine barrens, most of whom worked unassisted. Some of them, however, hired slaves from planters in the more fertile regions of the Province.[5] In Georgia, emphasis was placed on the production of staves, heading, shingles and lumber, while in North Carolina the concentration was on tar, pitch and turpentine. In 1768-69 North Carolina exceeded both Georgia and South Carolina in exports of naval stores and lumber products.[6]

That naval stores production, although still engaged in to a limited extent in South Carolina and Georgia, was centered in North Carolina before the Revolutionary War was shown by C. C. Crittenden in his Commerce of North Carolina, 1763-1789. At that time North Carolina produced three-fifths of the total value of the naval stores shipped from the continental colonies. In the Post-Revolutionary period, when the bounty on naval stores could no longer be obtained, exports from North Carolina dropped

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[4] The pitch pine trees which grew on the barren soil yielded, according to a traveller in 1783, "more profit to the occupiers, from the smallest capital imaginable, than can well be conceived was it not so well authenticated." Smyth, Tour in the United States of America, II, 95.

[5] Gray, History of Agriculture, I, 157.

[6] Ibid., Appendix, Table 36, II, 1019.

from 128,000 barrels in 1768 to 95,000 barrels in 1788. Large declines in shipments from the Wilmington-Beaufort region in the southern part of the state were offset by an increase of about one hundred per cent in the Washington-Albemarle Sound area. In relative importance, tar was first, turpentine second, and pitch third.[7]

By 1800, however, both tar and turpentine had practically ceased to be produced around Albemarle Sound.[8] Gradually the industry moved westward up the Roanoke and Tar Rivers, and by the last decade of the eighteenth century, naval stores were being produced as far west as Greenville and Tarboro.[9]

In 1810 Tarboro, the fall line town on the Tar River, had fourteen stores and served as the principal market town for Edgecombe and the adjacent counties. Jeremy Battle, who wrote "A Statistical and Historical Account of Edgecombe County" in 1811, estimated that 10,500 barrels of naval stores were exported from Edgecombe annually. From the other items listed among the

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[7] Crittenden, Commerce of North Carolina, 73, 160.

[8] Ashe, "The Forests, Forest Lands, and Forest Products of Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 74. Michaux, who toured the United States in 1802, stated that the manufacture of tar was confined to the maritime part of North Carolina, and to a small tract of Virginia. He suggested, however, that production could not long continue if only dead wood was to be used, because there was a great demand for the product, and once a forest had been cleared, the dead wood was not renewed in less than ten or twelve years. North American Sylva, III, 145-146.

[9] Gray, History of Agriculture, I, 157.

exports, however, such as corn, peas, and bacon, it was obvious that farming was also an important branch of industry. The naval stores were produced by the poor residents of the pine barrens, and also as an adjunct of the farming operations of the river lands. "It will be seen," said Battle,

> that naval stores hold a respectable rank as a staple commodity; from which we discover that the pine, which affords one of the most striking marks of sterility of soil, is still entitled to great consideration, more especially when contiguous to rich lands or navigable waters. A large proportion of the county abounds in them.... they yield to the laborer a greater profit than our best lands would do by farming.... The natives of this county knew but little of these advantages and would have starved, had they been possessed of no other means of subsistence. Emigrants from Virginia and the northeastern Counties of this State, settled on these barren lands, and converted the pines into meat, bread and money. [10]

While there is little in the way of statistics on the production of naval stores,[11] the exports offer some suggestion as

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[10] Jeremy Battle, "A Statistical and Historical Account of Edgecombe County, first presented to the Agricultural Society of Said County in 1811," extracts quoted in Tarboro Press, September 17, 1842.

[11] The census returns for this early period are practically useless for this study. The returns for 1810 give figures only on spirits of turpentine, and state that 100,900 gallons were produced in the United States. Of this amount, 94,900 gallons were distilled in North Carolina, chiefly in Craven and Beaufort Counties, which produced 62,600 gallons of the total quantity. The figures are obviously incomplete, however, as Johnston county had a larger number of stills than any other county, yet the quantity produced was not given. U. S. Treasury Department. A Statement of the Arts and Manufactures of the United States of America, for the year 1810: Part II. Compiled by Tench Coxe (Philadelphia, 1814), 26, 132-133.

The returns of the census for 1820 are equally unsatisfactory, as no statistics are given on crude turpentine, and the manu-

to the amount produced. The graph on page 240 gives the exports of tar, pitch, turpentine and rosin from 1791 to 1816. The entire period represents a rather chequered course of sharp rises and declines, due to the unstable state of commerce generally during the Napoleonic period. The graph on page 241 gives the exports of naval stores from 1821-1855, and reveals the increasing concentration on the production of crude turpentine as compared with the production of tar and pitch.

The mere recitation of statistics does not provide an adequate index to the development of the naval stores industry, but there is, unfortunately, little other information concerning the industry during the period from 1810-1830. During this period large numbers of people were emigrating from North Carolina and the state was frequently referred to as the "Rip Van Winkle" of the American states, apparently because of its tardiness in making internal improvements. The poor soil, moreover, would not permit its people to compete with the states of the lower South in the culture of cotton.[12]

While emigration to the south continued during the thirties, the increasing demand for turpentine drew the attention of those who remained at home to its production. The more frequent notices and references in the Newbern and Washington papers were

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factured products, such as spirits of turpentine, rosin and varnish are combined, and only the annual value of the products given. United States Bureau of the Census, Fourth Census of the United States, 1820, Digest of Accounts of Manufacturing Establishments in the United States and of Their Manufacture (Washington, 1823), passim.

[12] See extract of a report made to the legislature in 1828 on the establishment of cotton and wollen manufactures, quoted in Lefler, North Carolina History Told by Contemporaries, 251-252.

sufficient to indicate that the production of naval stores accounted for a considerable part of the economic activity of the region, and that production and distillation of turpentine had assumed some local importance.

As an example of this increased interest in the turpentine business, the Tarboro Free Press on September 5, 1834, added the price of turpentine and tar at Tarboro and Washington to its regular price current column. On March 31, 1835, the New York prices for naval stores were given for the first time, and on January 16, 1836, the Press began giving Newbern prices practically each week. Comments on the market were also given in connection with the New York prices and occasionally with the Newbern prices. The only naval stores products listed at any of the markets, however, were turpentine and tar.

In 1836 the Tarboro Press gave considerable attention to the increasing business activity in Washington and along Tar River. Quoting from the Washington Whig, the Press described the changes wrought in the commerce of Washington by the establishment of a steam saw mill and four turpentine distilleries, by the firm of Tannahill & Lavender.

> Singular prosperity has followed in the wake of the noble exertions of these gentlemen. Two years ago they erected their Steam Saw Mill here, which now daily turns out about 20,000 feet of lumber; they next erected their four grest Distilleries, which require about 100 barrels of turpentine per day.--Suddenly trade and industry felt a new impulse, and property rose in value. The march of improvement was onward. The hum of business grew louder and louder, and the arriving and departing

canvass,...proclaimed the rising fortunes of this port.[13]

That naval stores constituted the chief commodity in the trade of Washington at that time, is revealed in the account of a fire which swept the town in March 1837.

The fire originated on the wharf of Mr. Joseph Potts, merchant of this place, in the very heart of the business section of the town. Those acquainted with the trade of our place, know that it is chiefly in naval stores--the most combustible of all articles. At this time a very unusual quantity had accumulated on the wharves in consequence of a late scarcity of vessels. The wind too blew from the river directly into the thickest part of town. Under these circumstances, everyone apprehended the most extensive mischief; and we regret to add...More than one half of the business part of the town is now in ashes.... [14]

In the Wilmington area, too, the naval stores industry was growing during the eighteen thirties, as shown by the increasing number of references to the industry which appeared in the newspapers. In 1836, when the beginning of the Wilmington and Weldon Railroad opened up new vistas of trade, the Halifax Advocate stated that as the route was "through a choice section of the eastern half of our State; cotton, grain, staves, pork, turpentine, tar, and a thousand other productions...will spring into existence as soon as freightage shall become cheap. In this view it is most emphatically the farmer's road." [15] A few

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[13] Washington Whig, quoted in Tarboro Press, January 30, 1836.

[14] Ibid., April 1, 1837, June 24, 1837.

[15] Halifax Advocate, quoted in Tarboro Press, February 20, 1836.

weeks later the Wilmington Advertiser supplemented the editorial of the Advocate with the comment: "It will be 'emphatically the Farmer's road,'...leading to the largest sea port of his own State, and which must become one of the most extensive markets in the Southern country.... However other ports may compete with her, in...Naval Stores and Lumber, she must remain without any rival."[16]

The exports of naval stores from Wilmington revealed the increase in production of crude turpentine. In 1836, the exports amounted to 138,340 barrels of turpentine, valued at $451,380, the most valuable single item in the list of exports. Other exports included 3,483 barrels of rosin, 1,223 barrels of pitch, and 430 barrels of spirits of turpentine,[17] indicating that the distillation of turpentine had begun, but was not, as yet, a leading industry. For the year ending November 1, 1837, Wilmington exported 90,796 barrels of turpentine, 24,166 barrels of tar, 2,350 barrels of rosin, 781 barrels of pitch and 567 barrels of spirits turpentine. Although there was perhaps some decline due to the prevailing economic conditions, these figures

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[16] Wilmington Advertiser, quoted in Tarboro Press, March 13, 1836.

[17] Proceedings of the Internal Improvement Convention Held at Salisbury, 1836 (Salisbury, N. C., 1836), 11. The amount of tar exported was not mentioned in the report.

are in all probability considerably below the actual amount.[18] Of the eight firms dealing in turpentine in Wilmington in 1839, one--the firm of Hall & McRae--shipped 50,061 barrels of turpentine and 3,133 barrels of tar for the year ending June 1, 1839.[19]

This is sufficient to indicate the change in the nature of the industry from tar to turpentine as the chief product, and also to indicate that the shipments during the thirties were largely crude turpentine. The same was true of the Tarboro-Washington area; the county of Edgecombe, in 1840, produced 20,830 barrels of turpentine compared with only 1,096 barrels of tar.[20]

The census of 1840 showed 619,106 barrels of tar, pitch, turpentine and rosin produced in the United States-- 609,396 of

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[18] Wilmington Advertiser, March 23, 1838. The editor, in commenting on the figures, stated "There may be many omissions from the difficulty of procuring full returns from the shippers resident here, as well as from the absence of some transient shippers; but it is presumed the following list is nearly correct--at any rate it must be within bounds." The figures for exports from Wilmington throughout the decade of the thirties are very meagre. This was not the fault of the editor of the local paper who sought to publish them whenever obtainable. Since coasting vessels which carried the bulk of the trade were not required to clear at the custom house, the only way to obtain a record of the exports was for the merchants to make a transcript from their cargo books at intervals and turn them into the editor. The merchants, however, preferred to keep the amount of their business private, or else they were indifferent to the editor's repeated requests for information.

[19] Ibid., June 7, 1839.

[20] Tarboro Press, November 7, 1840.

which were produced in the South,[21] with North Carolina producing 593,451 barrels. Virginia, with 5,809 barrels, was the next largest producing state, followed by Tennessee, Mississippi and Louisiana. South Carolina, Georgia and Alabama each produced less than 1,000 barrels, and Florida none.

In North Carolina the three largest producing counties, Craven (139,000 barrels), Beaufort (107,000), and Pitt (55,769) were in the Newbern and Washington area, and accounted for more than half of the North Carolina total. The next three largest producing counties were Onslow (47,000), Duplin (47,000), and New Hanover (36,000) in the Wilmington area. Only three other counties produced as much as 20,000 barrels--Martin, Bertie, and Edgecombe.

This indicates (see map on page [illegible]) that the seat of production in North Carolina was in the central and coastal counties, and in the northern counties on the headwaters of the Tar and Roanoke Rivers.[22]

Prior to the year 1838 the industry had not spread south of

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[21] These and other figures in this paragraph are taken from United States Bureau of the Census, Sixth Census of the United States, 1840, Compendium of the Enumeration of the Inhabitants and Statistics of the United States (Washington, 1841), 357, and passim.

[22] Production in the other states centered in one or two counties in each state. In Virginia, 3,491 of the total of 5,309 barrels were produced in the counties of Nansemond and Southampton, near the North Carolina line. In South Carolina, production centered in Horry county, also bordering the North Carolina state line.

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-produced in the South, with North Carolina pro-

barrels. Virginia, with 5,000 barrels, was the

than 1,000 barrels, and Florida none.

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Dunham and Washington area, and second for some

of the North Carolina total. The next three leaders

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produced as much as 30,000 barrels--Martin, Pamlico, and

North Carolina was in the central and coastal coun-

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mines or the Caswell [illegible] of the [illegible]

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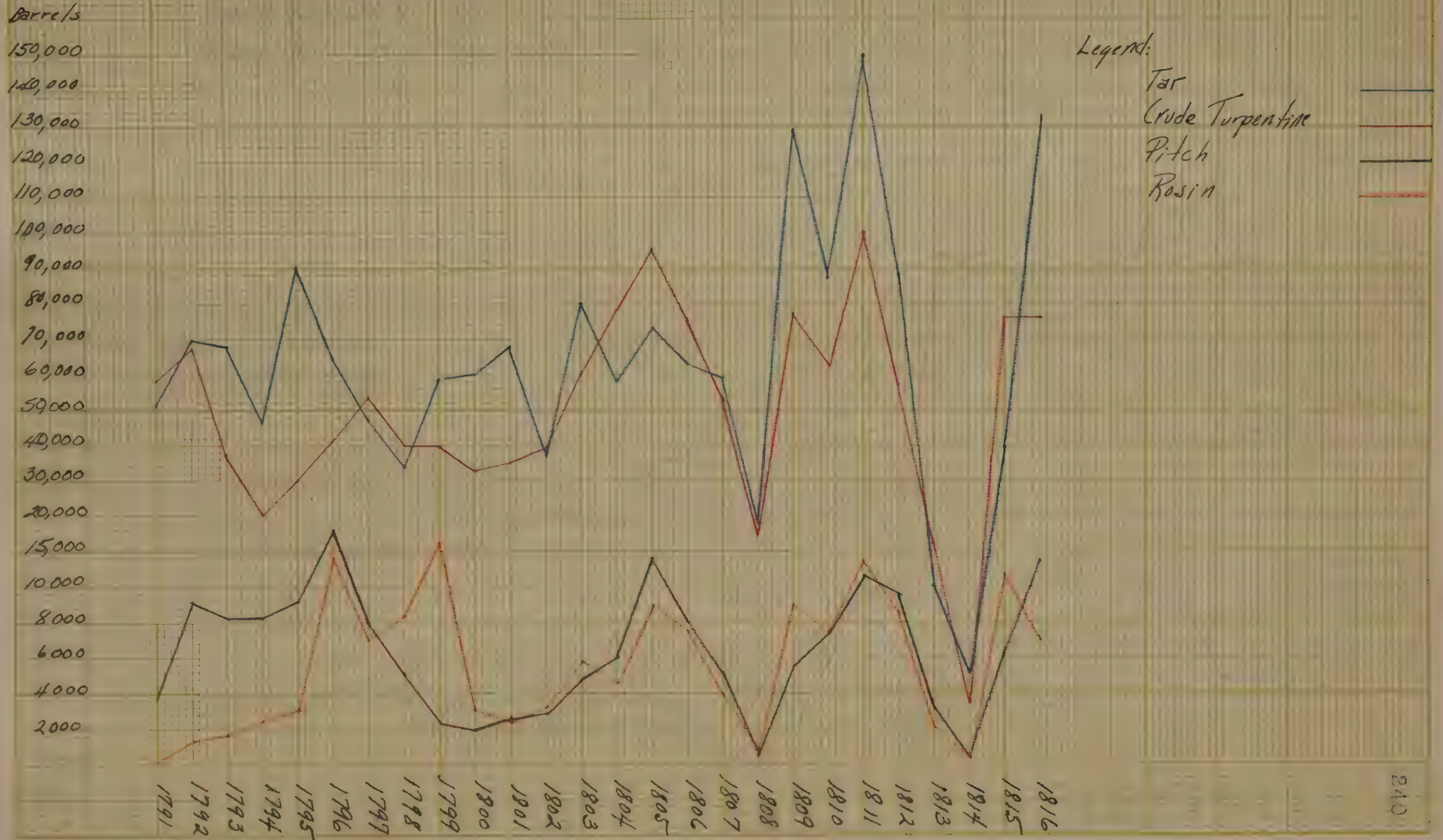
each county. In Virginia, Pitt of the trend of [illegible]

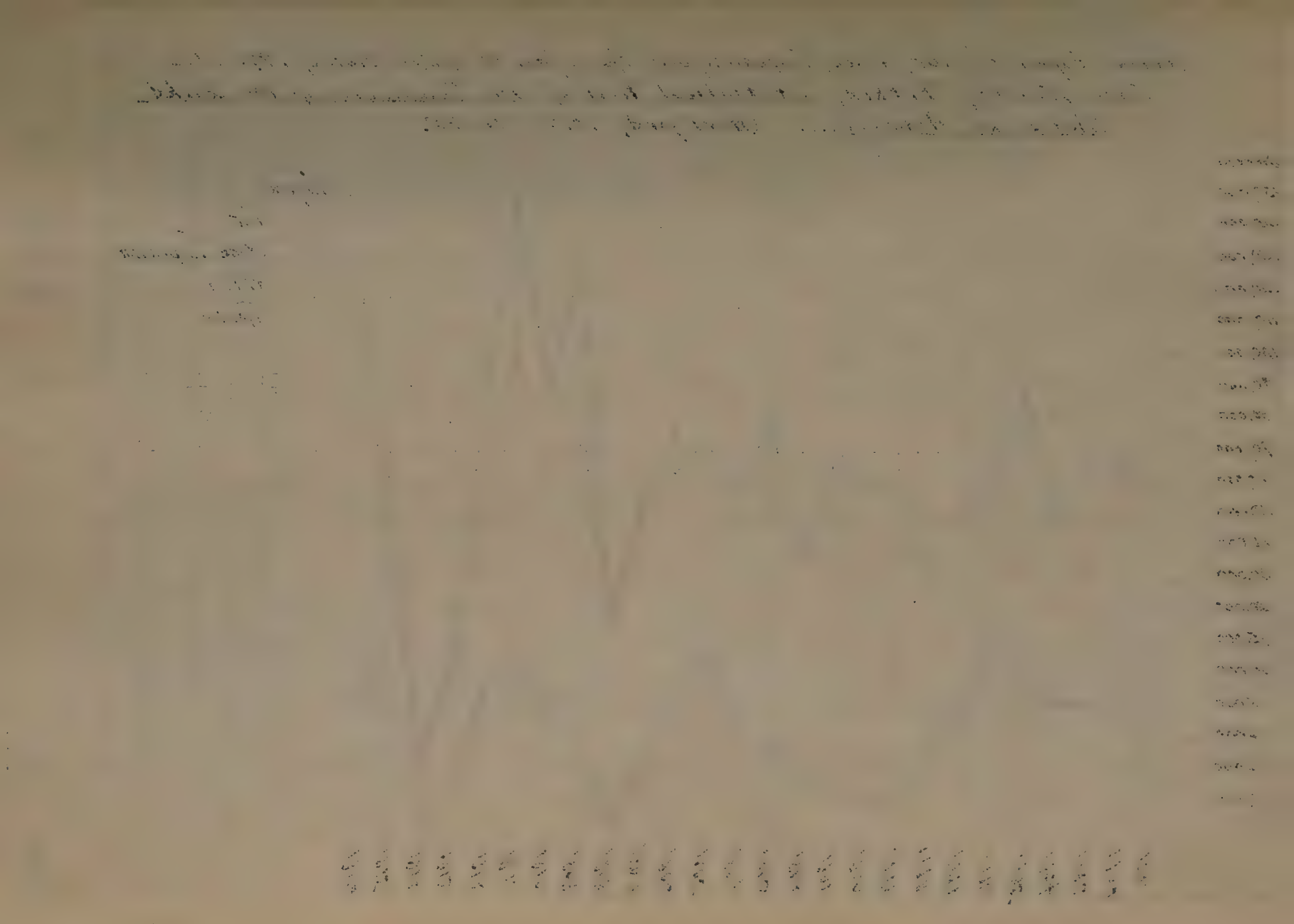
used in the counties of Brunswick and Dinwid-

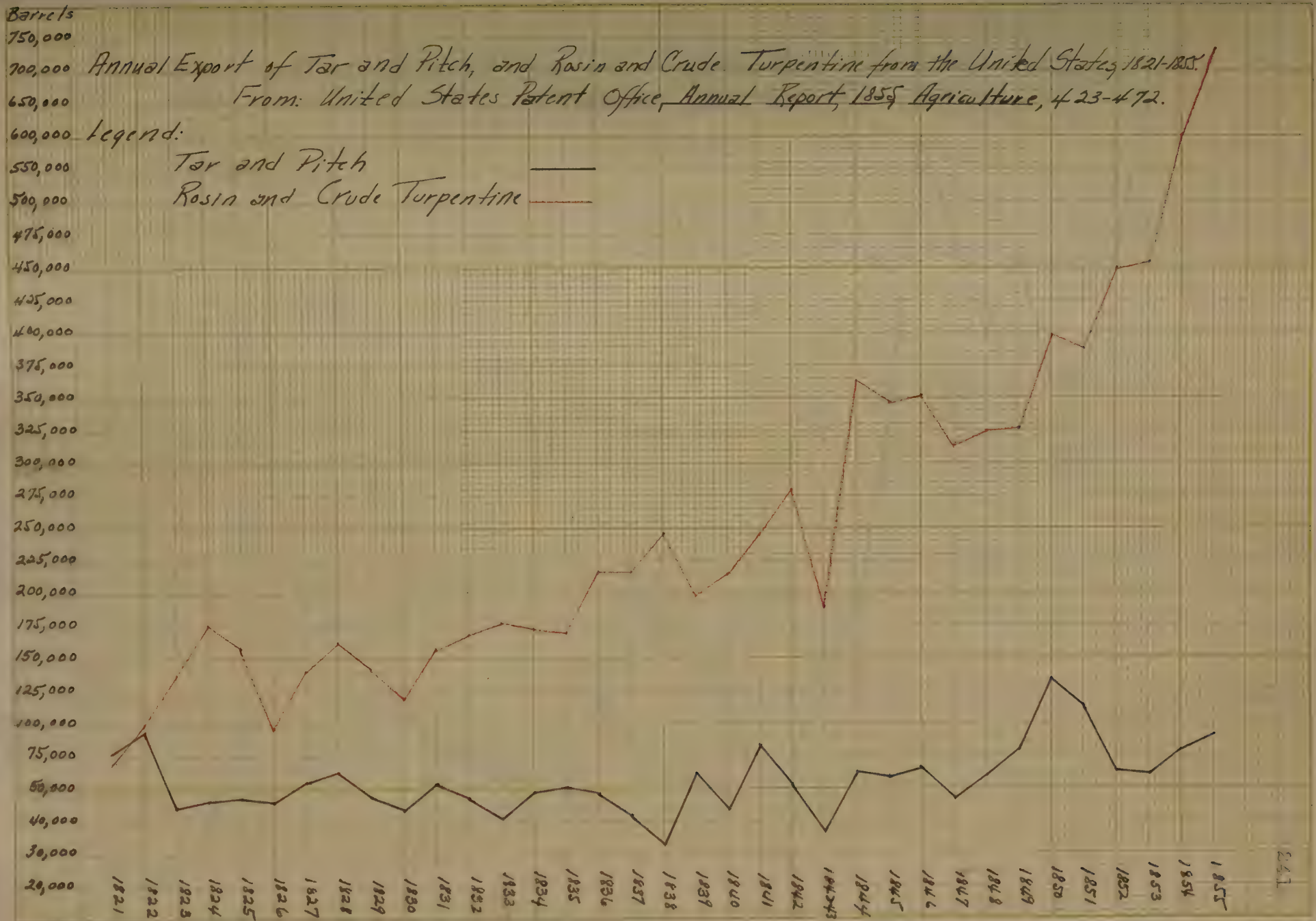
county, also Lunenburg; the Dunbar

the Cape Fear River, due to a belief that the pines farther south would not yield the resin sufficiently. The increased demand brought about experiments in this area which soon proved the error of this assumption, and the practically untouched belt of longleaf pine forest extending from the Carolinas to Texas was gradually invaded.

Annual Export of Tar, Pitch, Turpentine, and Rosin from the United States, 1791-1816.
From: Timothy Pitkin, Statistical View of the Commerce of the United States of America.... (Hartford, 1817), 71-78.



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650,000
600,000
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450,000
425,000
400,000
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350,000
325,000
300,000
275,000
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200,000
175,000
150,000
125,000
100,000
75,000
50,000
40,000
30,000
20,000
Annual Export of Tar and Pitch, and Rosin and Crude Turpentine from the United States, 1821-1855.
From: United States Patent Office, Annual Report, 1855, Agriculture, 423-472.
Legend:
Tar and Pitch
Rosin and Crude Turpentine
1821
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1823
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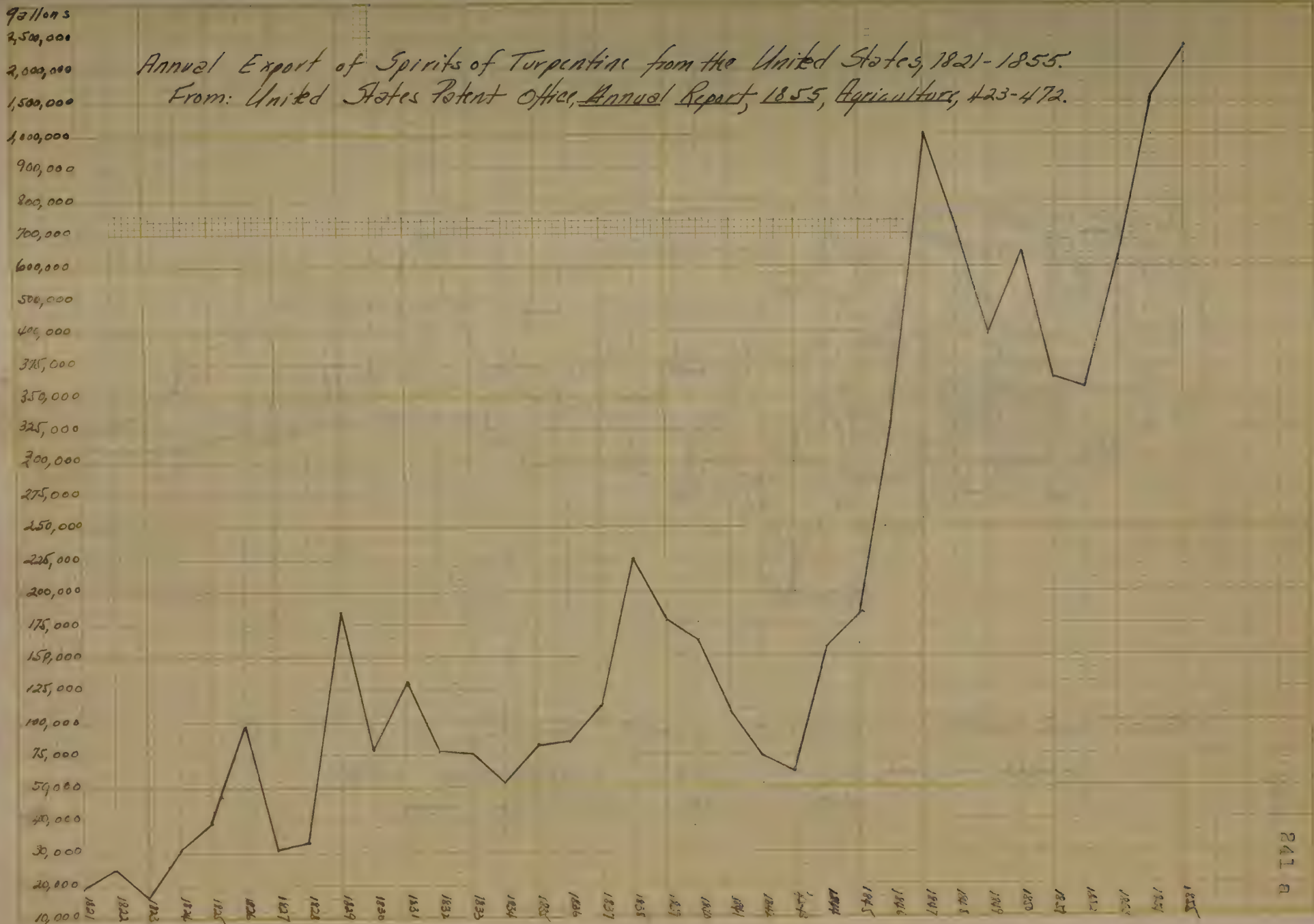
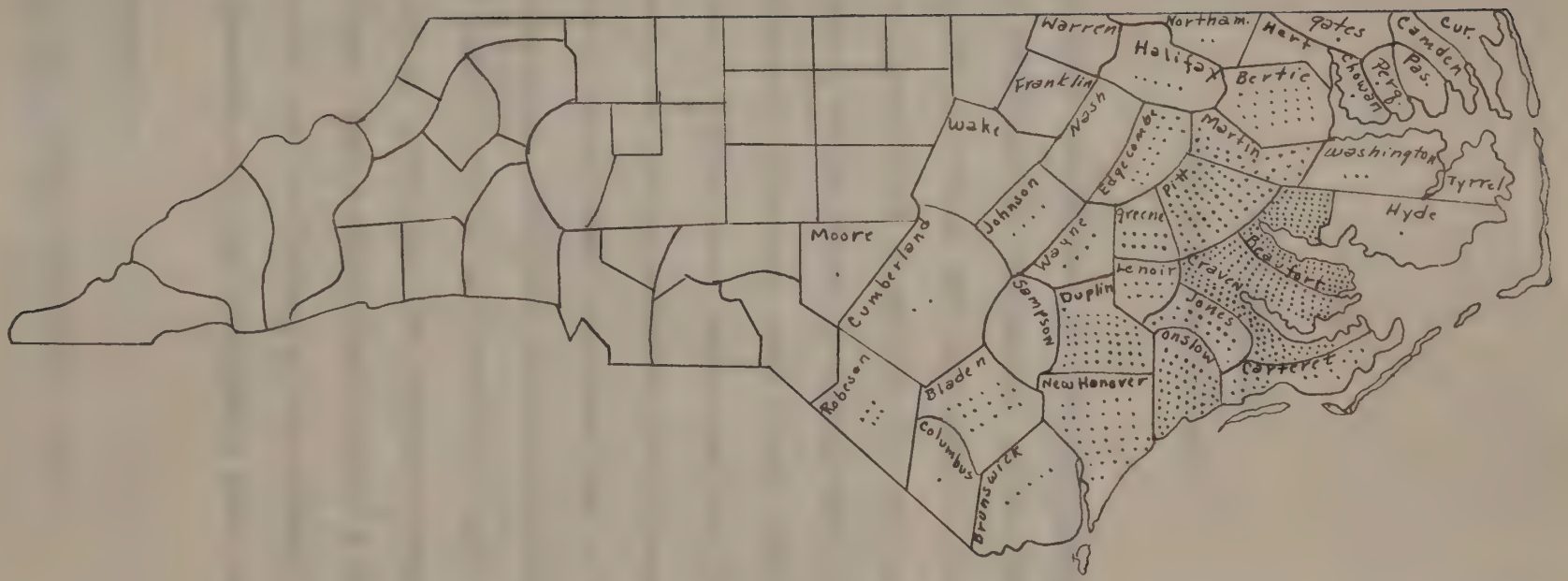


Annual Export of Spirits of Turpentine from the United States, 1821-1855.
From: United States Patent Office, Annual Report, 1855, Agriculture, 423-472.

241 B



Map of North Carolina Showing Production of Naval Stores in 1840.

Each dot represents 1,000 barrels, or fraction thereof.

From: United States Census of 1840.

241b

CHAPTER XIV

THE TURPENTINE MANIA

In March 1841 the editor of the Wilmington Chronicle, in reviewing the progress of Wilmington since 1830, stated that the changes, most of which had occurred in the preceding four years, were so great that those who had not seen Wilmington within five years would scarcely recognize it. Its population had increased about fifty per cent since 1830, and the greater part of the town, having been destroyed by fire in January, 1840, had been practically rebuilt with fireproof brick buildings. He added, among other changes, that a foundry had been erected in connection with the railroad depot buildings, that a large new steam saw mill had recently begun operation, and "with these may be mentioned two extensive Turpentine distilleries which have been established within a short time."[1]

This was but the beginning of the distilling business at Wilmington, however, and the following year the editor stated:

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[1] Wilmington Chronicle, March 31, 1841.

Few persons, we presume, even in our midst, have an idea of the quantity of raw turpentine used by the turpentine distillers of Wilmington. There are three establishments here, and they work up about 200 barrels a day making between 62 and 63 thousand barrels per annum. Seventy or eighty thousand barrels, it is expected will be used by them for the year to come. Nearly one hundred thousand barrels turpentine besides were shipped from this port for the year ending the first of July.[2]

The influence of the Wilmington and Weldon Railroad and of the greatly expanding demand for turpentine was soon felt in the entire economic life of Wilmington and of the state as a whole. In September, the editor called attention to the progress and prosperity Wilmington had achieved, in an editorial entitled "Our Town":

It is really gratifying to our local pride, to observe the indications of our increasing prosperity; an active spirit of enterprise seems to be abroad, and the result is a very perceptible difference in the appearance of the town...the appearance of business in the streets and on the wharves, would seem to indicate future if not present prosperity. Our population, as appears by the last census, exceeds by a handsome majority, that of any town in the State, while our commercial and maritime privileges place us beyond the reach of competition. Old Wilmington has at length assumed her true position, that of the leading place of traffic in North Carolina, the principal town in the State, greater in population, greater in trade, and greater in a quickening spirit of enterprise.[3]

So pronounced was the effect of the turpentine distilleries on the prosperity of Wilmington that the editor of the Journal in 1845, writing on the proposed establishment of a cotton

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[2] Wilmington Chronicle, August 3, 1842.

[3] Ibid., September 28, 1842.

factory at Wilmington, stated "experience shows that it will be profitable.... See what the Steam Saw Mill and the Distilleries have already done for us. We have every reason to believe that if the manufacturing spirit is once aroused, the same, if not happier effects will flow from it."[4]

While there was some expansion of the naval stores industry in the older turpentine region around Washington and Newbern and the hinterland of these ports, the main expansion after 1840 was south of the Cape Fear, and in the fifties up the Cape Fear. A number of those entering the business were younger sons emigrating from the Washington area to more opportune regions where the extensive tracts of unspoiled timber permitted large scale operation. James R. Grist, whose father had been engaged in the turpentine business for a number of years in Beaufort County, near Washington, purchased six thousand acres and moved to Brunswick County in 1843,[5] and D. W. Jordan moved from Pitt County to Brunswick late in 1843 or early 1844.[6] Nor were these two the only ones, for Malvina Jordan in a letter to D. W. Jordan, in November 1845, remarked, "And Henry cJordanc has also become a Brunswickian? well success to all you Brunswick

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[4] Wilmington Journal, August 15, 1845.

[5] Willi E. Smaw to Allen Grist, November 23, 1843. Grist Collection, Letters, Duke University Library.

[6] D. W. Jordan to Emily Jordan, April 9, 1844. Jordan Collection, Duke University Library.

turpentine cands lumber...getters. shouldn't be surprised if you had half of Pitt soon."[7]

As production increased, the volume of trade in Wilmington increased and so did the distilling business. By the end of 1844 Wilmington had nine distilleries, operating thirty stills, using eight hundred barrels of crude turpentine and producing four thousand gallons of spirits of turpentine daily.[8]

In September, 1845, the editor of the Chronicle, having busied himself in gathering statistics on the turpentine business at Wilmington, estimated the value of the turpentine manufactured and shipped from Wilmington the preceding year to be $568,000. "A tolerable respectable revenue from one tree. Long live the evergreen pine, say we!!"[9]

The following week the editor gave a more complete description of the naval stores trade at Wilmington:

> There are eleven distilleries up, and going up, which run thirty-four stills--consuming two hundred thousand barrels of turpentine: worth four hundred thousand dollars.... Besides the distilleries in town, included in our calculation, there are nine in the immediate vicinity which consume on an average 10,000 barrels each, of the raw material. Worth for 90,000

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[7] Malvina Jordan to D. W. Jordan, November 2, 1845. Jordan Collection, Duke University Library. See also a letter from Churchill Perkins to D. W. Jordan, July, 1845, mentioning others who were going to Brunswick to engage in the turpentine business. Jordan Collection, Duke University Library.

[8] Wilmington Chronicle, quoted in Tarboro Press, January 25, 1845.

[9] Wilmington Chronicle, September 10, 1845.

barrels, $180,000.... Crude, or unmanufactured turpentine, exported, 75,000 barrels, worth $168,000. Tar shipped, 30,000 bbls, worth $45,000....[10]

"That Wilmington is rapidly increasing in population, health, business, and wealth, is," said the editor, "obvious to the most careless observer...."[11] The New York market soon felt the effect of the expanding distilling business at Wilmington and mentioned: "There has been little or no Wilmington turpentines received here for a considerable time past, except for shipment, in consequence of the increased demand for it there, for distilling on the spot."[12]

Not only in the Wilmington area but all over the pine regions of the eastern part of the state, the turpentine business began to expand, and as it expanded brought prosperity to the port towns and a quickening impulse to the economic life of North Carolina generally. By 1846, Washington, North Carolina, had seven turpentine distilleries operating fifteen stills, which

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[10] Wilmington Chronicle, September 17, 1845. The capital invested in distilleries in Wilmington he estimated at "$87,000--labor, $66,000--overseers wages, $6,000--and capital to work distilleries, $83,750--total amount invested in the manufacture of turpentine, $242,750."

[11] Ibid.

[12] Quoted in Tarboro Press, January 14, 1846. Beginning with this issue, the Press carried Wilmington prices regularly until late 1847, and they bore out the above statement by such remarks as: "all taken by distillers"; "only one shipper in market"; "competition among distillers keen."

consumed 118,000 barrels of crude turpentine annually. In addition, the exports for that year amounted to 232,266 barrels of naval stores and 6,074 barrels of spirits of turpentine, constituting nearly three fourths of the total value of all the exports from Washington.[13] Approximately 30,000 tons of shipping were employed in the trade of the port and new vessels were being built. The editor of the Washington Whig, in calling attention to the importance of Washington's commercial activities, added: "The trade of Washington being in this healthful condition, the aspect of affairs amongst us looks cheerful and promising."[14]

The repeal of the British tariff on products derived from turpentine brought about considerable speculation in the industry, prices rose sharply, and "getting turpentine" became almost a mania.[15] In January, 1846, one New York house cornered the market, and the price of turpentine soared. The market news of January 8 stated that, "There have been no recent transactions in turpentine. It is estimated that fully two thirds of the present crop has come forward, and there is now a stock on hand

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[13] The minor exports consisted of 66,744 bushels of grain, 6,272,000 feet of lumber and 2,392 bales of cotton, and other items.

[14] Washington Whig, quoted in Tarboro Press, January 21, 1846.

[15] The Tarboro Press for these two years, 1846-47, contained more concerning naval stores than it had since it began publication about 1825.

in this market of 12 to 13,000 bbls. North County, (mostly in the hands of one house,) all held firmly at $5 per 280 lb. at which price the last sales were made."[16]

As evidence of the general effect of the high prices for naval stores, the Tarboro Press of February 11, 1846, contained references to the prosperity brought to Washington, Tarboro, and Fayetteville by the sudden increase in turpentine production. Concerning the effect at Tarboro, it said:

> We are truly pleased to witness...the impulse given to every branch of business in this section, by the recent advance in the prices of turpentine, &c. We have not for many years past seen such business like times as our streets have presented for several months past. Lands are increasing in value, and prices of negroes improving.... And from the annexed paragraphs it would appear that other portions of the eastern part of our State are unusually prosperous at the present time. 17

An item from the Fayetteville Observer headed "The Turpentine Region," confirmed these facts by stating:

> This part of our State has never, to our knowledge, been in so prosperous a condition as at present. Lands have risen, one, two, or three hundred per cent., and labor is so profitable that.... A gentleman who had gone to Wilmington to sell his turpentine, in pocketing $1900, remarked that sum was the produce of the labor of four hands.
> As a consequence of this state of things and for the first time probably, many persons from the upper counties are moving

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16 New York market news of January 8, 1846, quoted in Tarboro Press, January 14, 1846.

17 Tarboro Press, February 11, 1846.

down. The tide of Western emigration may be said to have ceased entirely. 18

The Washington Whig in an editorial labeled "Our Town," noted as additional evidence of increasing prosperity that a new turpentine distillery had been completed and put into operation, that a soap and candle factory were in process of construction, and that preparations were in progress for building five new vessels, including one on the stocks. "If prices continue as they now are, the exports from Washington for this year," said the Whig, "will no doubt, amount to nearly two millions of dollars." 19

In Wilmington, which had already felt the impetus of the booming turpentine trade, speculation following the repeal of the tariff increased the tempo of the distilling business. Whereas in January, 1845, the town had boasted of nine distilleries, by March, 1846, three additional distilleries had been erected and three more were in process of construction. When completed, these would contain a total of thirty-seven stills. It was estimated that the fifteen distilleries would consume fifteen hundred barrels of crude turpentine daily, and produce

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18 Fayetteville Observer, quoted in Tarboro Press, February 11, 1846. This same article mentioned the high prices being paid for Negroes at sales, and also the high wages paid in hiring hands.

19 Washington Whig, quoted in Tarboro Press, February 11, 1846.

two hundred barrels of spirits, with the usual proportion of rosin and pitch.

"The distilling business," said the editor of the Chronicle, "has in fact become a great interest here, one almost equal in importance to any other.... In addition to these in Wilmington, there are a great many distilleries...in the neighboring counties, and on the line of the Rail Road, the products of which are brought here for sale and shipment, and others are going up in every direction in the country around."[20]

The high prices offered for turpentine in 1846 induced many to forsake their plows and the cultivation of the soil and to repair to the woods "to get turpentine." So great was the attraction of labor from farming, that the Newbernian, quoting an article from the Tarboro Press on the value of marl as a fertilizer, commented "The great rage for making turpentine gives an assurance to those who produce breadstuffs and pork, of a good return for their labor;...."[21]

Speculation in naval stores had already reached its peak, however, and when the new crop began to arrive in market the following May, the price of turpentine tumbled from four to two dollars per barrel, and of spirits of turpentine, from sixty-five to thirty-five cents per gallon. The Washington Whig, in com-

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[20] Wilmington Chronicle, March 11, 1846.

[21] Newbernian, quoted in Tarboro Press, April 22, 1846.

menting on the break in the price, accorded scant sympathy to the speculators:

Quite a commotion was produced among our merchants on Monday night, by the announcement of the failure of Mr. J. Moore Taylor, of New York, who has done a large business with this place. He made a snug fortune, in a few weeks last Fall, by the rise in naval stores, and now, we suppose, he is strammashed by the recent fall in the same articles. "Ups and downs and alterations" are inseparably interwoven with the web of life; and the victims of indiscretion and hazard should bear their reverses with fortitude, and learn wisdom by experience. 22

The Wilmington Journal of May 15, 1846, taking cognizance of the recent fall in naval stores prices, reviewed the situation as follows:

The sudden and unprecedented revulsion in the price of Naval Stores has cast a most serious gloom over the prospects of this section of North Carolina. Stimulated by the extraordinary prices which Turpentine commanded during the whole of last winter,.... Lands and negroes have been purchased and hired at high prices in anticipation that the product of the pine would continue to command such a price as would repay any outlay. The bubble has bursted...and it is with extreme regret that we are compelled to express the opinion that neither of the articles have reached the lowest point of the depression yet. 23

The editor pointed out that it had been amply demonstrated that speculation was the chief cause for the sudden and unexpected

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22 Washington Whig, quoted in Tarboro Press, April 22, 1846. There was considerable speculation in New York at this time, for on July 29, 1846, the Tarboro Press, quoting the Portsmouth Old Dominion, printed an account of the failure of three flour merchants in New York due to speculation.

23 Wilmington Journal, May 15, 1846.

rise in prices during the preceding winter, rather than an increase in demand for naval stores either in the United States or Great Britain; for there was on hand in New York, Liverpool and London alone, at least 125,000 barrels of the old crop of turpentine. There were, in addition, six or seven thousand barrels of spirits of turpentine on hand in New York. This the editor considered as proof positive that the recent high prices did not result from any legitimate cause. As a result of the excessive stocks of spirits of turpentine, the market became very unsettled and the distillers of North Carolina, with few exceptions, suspended operations. The editor suggested that the producers hold back the present crop until the market had had time to recover, for if they persisted in bringing in the new crop with such a large stock of the old on hand, it could serve only to depress prices further.

As a result of the crash in the turpentine market some of those who were drawn into the business by the high prices became discouraged and returned to farming. The market continued very unstable throughout the summer and fall, but with favorable news from Europe it recovered slightly toward the end of the year. Even at the lower price the industry paid as good return as anything else that could be produced on the poor barren soil, and it continued to grow, although at a slower pace.

The crash possibly contributed to the early removal of the stills inland; at least their removal to the forests began the

next year. The Wilmington Journal of April 2, 1847, in its column on market news noted that the crop for the season just closed "has been considerably short of the previous year's. This we believe to be owing to the fact that a number of distilleries have gone into operation in the country, which has prevented a large portion of the raw material from reaching this market that would otherwise have been received here."

The effects of the expansion of the industry on the town of Tarboro were reviewed by the editor of the Tarboro Press in an editorial entitled "Our Town--The Past--The Present--The Prospect," published November 6, 1847. He reviewed the former greatness of Tarboro, about thirty-five years previous, when it served as the principal trading town for the surrounding counties. Subsequently Petersburg, Virginia, lured so much of the tobacco trade that the Tarboro market was destroyed; Tarboro began to dwindle, and a period of dull years followed. "Even five years ago values of real property were almost nominal." But with a more optimistic note, the editor stated that the period of depression had passed; during the past four or five years a great change had come over the town, and Tarboro was "shaking off the dust of thirty years" and again coming to life.

We have still to notice one of the main grounds of the remarkable change in the aspect of our town and its business. We mean the Turpentine business. Four years ago, not a thousand barrels were brought to this Town--this year at least Thirty Thousand have been and will be brought here. This alone is an item of some fifty thousand dollars. Only one distillery of this article has been yet established here; but if the business be profitable, and we can see no reason why it is not more

profitable here than in New York and Boston, there is ample room and material for several more. There is no doubt that the production of Turpentine coming to this place will extend for several years. 24

At about the same time the Newbernian attempted to give a comprehensive account of the production of turpentine in North Carolina and its effect on the state as a whole. Pointing out that statistical information in regard to the products and commerce of North Carolina was exceedingly difficult to obtain and that all attempts at an estimate were naturally defective, the editor added, "yet attempted estimates of an article which forms so important an item in the labor and wealth of Eastern Carolina as turpentine, cannot fail to be interesting,...."

...about 800,000 barrels of turpentine are now annually made in this state. Not more than 200,000 barrels, if that, were shipped to New York and other ports the past year in its crude state, and the largest portion of the whole being distilled in this state. The estimated value to the makers is about $1,700,000 annually, and it may be $2,000,000. About 4,000 or 5,000 laborers are engaged in making it, and perhaps three times as many more human beings are supported mainly by the proceeds of its first sale.... It is supposed that there are now in operation about 150 stills, which at the average cost of $1,500 with fixtures, shows that there is an expenditure of $225,000 to begin with in the distilling of spirits of turpentine.... The cost of distilling is very great, and when we reckon the cost of transportation, the profits of distillers, of shipowners, commission merchants, and the venders of the article abroad, it will be seen that the capital and labor employed are not only immense, but the numbers who are supported by the manufacture and sale of the article are astonishing. Perhaps there is no one article produced in this country by the same number of

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24 Tarboro Press, November 6, 1847.

laborers, which contributes so much to the commerce and prosperity of the state, as the article of turpentine. [25]

By 1848 the annual production of turpentine in the state of North Carolina was estimated to be more than one million barrels.[26]

A good many of the turpentine producers attempted to produce some food for their plantations, but when a planter had all bf his hands engaged in turpentine operations they had no time left for farming, and he often had to buy corn, hay and provisions from others, frequently from the northern and eastern states. In 1848 a farmer from Duplin County writing to the editor of the North Carolina Farmer, complained that "The farmers in this section of the country turn too much of their attention to turpentine; and as it requires the strongest hands to tend turpentine, the farms are neglected, hedges suffered to grow up, and the fences get out of repair; consequently short crops are made, and a great many farmers have to buy corn and pork."[27]

Many other articles such as beef, butter, cheese, and flour which could have been produced locally were imported. Even bulky articles like hay were purchased in large quantities from

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[25] Newbernian, quoted in DeBow, ed., Industrial Resources of the Southern and Western States, II, 138, III, 350.

[26] Fayetteville Observer, quoted in Wilmington Journal, April 14, 1848.

[27] North Carolina Farmer, III (January, 1848), 184-185.

the North. In 1850, the editor of the Wilmington Chronicle, pointing out the dependence of the South on Northern produce and the very necessaries of life, declared that North Carolinians "have been satisfied with the receipts of their Rice Fields and Turpentine trees, and looking at the large things have passed unseen, the smaller ones which lead to fortune."[28]

In August, 1851, a correspondent of the Fayetteville North Carolinian also called attention to the fact that too much attention was being paid to turpentine, and all the profit was being consumed in imports. Labelling his communication "All Wrong," he stated:

> North Carolina should be an exporting State, at least of provisions; but...We understand thousands upon thousands of bushels of Corn, hundreds of bales of Hay, and hundreds of thousands of pounds of Bacon have been imported from Baltimore and other places to supply the immense demand...in this market.... It is idle to build Plank Roads, improve Rivers, or build Railroads, under such a state of things, unless it is for the convenience of getting the produce of other States back into ours.
>
> The increase of the turpentine business requires four times as much corn and bacon to be consumed in this market as in former years, and merchants are compelled to look elsewhere than our back country for the supply.
>
> ...Fayetteville formerly furnished that market [Wilmington] to some extent with corn, meal, bacon, and flour; but now we import thro' Wilmington for our own consumption....
>
> Would it not be better for our farmers in this neighborhood to turn their attention to raising stock and making corn, and not devote so much time to getting turpentine. [29]

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[28] Wilmington Chronicle, November 30, 1850.

[29] Fayetteville North Carolinian, August 30, 1851.

In August 1855, the editor of the Wilmington Journal again called attention to the economic folly of sending so far away for things that could be raised at home.

> The quantity of Northern and Eastern Hay sold in this market is immense, and the amount of money thus taken away for an article that we can and ought to raise at home, is a very serious drain upon the resources of our people. We have time and again drawn the attention of our farming community to this subject. It really makes us feel bad every time we see a lot of inferior stuff landed at our wharves...and our own lowlands ready to afford a supply of good hay, and at a profit to the careful cultivator. [30]

Although the Newbernian in 1843 had forecast the eventual decline of the turpentine trade around Newbern and stated that the town would have to depend upon something else,[31] there were, in 1851, twelve distilleries there.[32] Likewise naval stores continued to be the chief articles in Washington's trade in

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[30] Wilmington Journal, August 10, 1855.

[31] Newbernian, February 29, 1848. The decline in Newbern's trade was probably due in part to the removal of the stills inland, but more to the Wilmington and Weldon Railroad which tapped its trade at the headwaters of the Neuse River. Offering more reliable transportation services than the river, and delivering the products at a standard market where prices always ruled higher due to lower shipping rates to points north, producers naturally preferred to ship to Wilmington. The turpentine industry was also older around Newbern, and hence the larger tracts of pine land contiguous to the streams were exhausted earlier. Compare an article on "Prospects of Tarboro," in the Newbernian, quoted by Tarboro Press, November 20, 1847.

[32] Raleigh North Carolina Standard, quoted in Fayetteville North Carolinian, May 24, 1851.

1851.[33]

As the turpentine business increased and the people of North Carolina became more prosperous generally, values of all property increased. In January, 1852, the editor of the Fayetteville North Carolinian, reviewing the situation, said in an editorial on the "Wages of Labor":

If the enhanced value of slave labor be taken as evidence of increasing prosperity, we of this community may congratulate ourselves with the prospect of a brightening future. Negroes hired on New Year's day for prices higher by 25 to 33 per cent than last year--first rate men bringing from 100 to 135 dollars. This is attributed to the high price of timber in the Wilmington market, the great demand for labor on the various plank roads now in process of construction from this place, and also on the Cape Fear and Deep River improvements, and the increasing production of turpentine in the surrounding country. 34

The extent to which the turpentine and distilling business had expanded in the Cape Fear region was revealed in a report on the statistics of Cumberland County published in 1852.[35] Whereas, there had been only one turpentine distillery in the county in 1844,[36] by 1852 the production and distillation of

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[33] Washington Telegraph, quoted in Wilmington Herald, May 20, 1851.

[34] Fayetteville North Carolinian, January 31, 1852.

[35] This report was prepared by a committee consisting of James Banks, W. W. Willkings, John H. Cook and C. G. Wright, appointed by the people of Fayetteville. It was printed originally in the Fayetteville Observer of December 7, 1852, and extracts reprinted in the North Carolinian, December 11, 1852, from which these figures are taken.

[36] Ashe, "The Forests, Forest Lands, and Forest Products of

turpentine yielded an annual income of $348,000. The capital invested in distilleries--thirty-two in number--amounted to $75,000, required an operating capital of $300,000, and new distilleries were constantly being erected. Between 1840 and 1850 the population of Cumberland county increased from 13,284 to 20,160, while the slave population grew from 4,285 to 7,217. This was an increase of about thirty-four per cent in the whole population and seventy-five per cent in the slave population.[37] That turpentine production was still expanding was evident when, a few weeks later (January, 1853), the editor of the Fayetteville Observer announced that the population of Cumberland County had increased another one thousand since the first of the year, "about 300 whites and 700 slaves having arrived...from other parts of the State to engage in the turpentine business."[38]

So rapid was the expansion of the turpentine industry during the forties and fifties, and so numerous were the changes throughout the state,[39] that in February, 1853, the editor of the

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Eastern North Carolina," North Carolina Geological Survey, Bulletin, No. 5 (1894), 77.

[37] Fayetteville Observer, December 7, 1852, quoted in Fayetteville North Carolinian, December 11, 1852.

[38] Fayetteville Observer, cited in Raleigh North Carolina Standard, February 2, 1853.

[39] For a statement on the part played by the naval stores industry in the growth of Wilmington, see the remarks of a North Carolina turpentine producer who had moved to Georgia, in the Savannah News, quoted in Tarboro Southerner, October 2, 1852.

Wilmington Journal wrote a long editorial calling attention to the accomplishments in the state since 1848--the laying or relaying of all the railroads with T-iron, the extensive plank road developments which began in the upper Cape Fear region and had extended to other parts of the state, the inauguration of a common school system in the state, and many others. The conclusions to be drawn from the many evidences of the progress and prosperity of North Carolina were obvious. Labelling his editorial "Then and Now," the editor, with pardonable pride, stated:

> With whatever justice the sobriquet of "Rip Van Winkle" may, in former times, have been applied to the "old North State," or with whatever propriety her people may have been taunted with tardiness in adopting the improvements, or keeping up with the progress of the age, we think that a calm survey of the relative position of affairs for five or six years past, and at the present time, will convince every unprejudiced mind that such epithets, or such taunts would now be not only highly improper, but also in direct contrast to the true state of the case as it now exists. 40

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40 Wilmington Journal, February 11, 1853. See also the Charleston Evening News, quoted in the Wilmington Journal, January 8, 1846, for a similar editorial pointing out the progress made by North Carolina during the forties, and concluding with the comment: "It would be folly to call her any longer by the sleepy name of Rip Van Winkle. Our own State seems now to be the drowsier of the two."

CHAPTER XV

THE PINE BORER EPIDEMIC

In 1843, the naval stores industry suffered a disaster which hastened its decline in North Carolina. The cause of the gloom which settled over eastern North Carolina, at a time when its economic prospects had been raised by the building of the Wilmington and Weldon Railroad and by the proposed Wilmington and Manchester Railroad, was an epidemic which killed thousands upon thousands of the longleaf pine trees, from which came the golden flow of turpentine, and also the bountiful supplies of lumber.[1]

The epidemic of 1843 was located chiefly south of the Cape Fear River in Brunswick County, although there was damage in

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[1] The Wilmington Chronicle in May, 1843, stated that "one gentleman of our acquaintance in Brunswick County has on his plantation one hundred and thirty thousand trees, or the task of about twelve hands, which have died within a short time. Others also we have heard of who have lost from a fourth to a half of their trees." Quoted in North Carolina Farmer, III (May, 1843), 271-272. Another planter in Brunswick County was estimated to have suffered a loss of 750,000 trees before the epidemic subsided. Wilmington Herald, quoted in Arator, I (May, 1855), 43.

other sections of the state. The damage was accredited to various agencies, chief among them a small black bug, probably the pine borer.[2] Whatever the cause, the epidemic created great alarm and much concern in eastern North Carolina. In May, 1843, the Wilmington Chronicle stated:

> Much concern prevails among the Turpentine producers and dealers in this section of the State on account of the immense number of Pine trees that are dying, without any perceptible cause. We observed something of it in a short excursion which we made into the country a few weeks since, and now we understand the decay is going on at a rapid rate.... The cause of this extensive destruction of the most valuable tree of our forests is eminently worthy of close investigation. 3

When news of the epidemic reached the northern states its authenticity was questioned, the accounts being considered only as depressing comments on the prospects of next year's crop to bring about a rise in price. A few days later, however, the Wilmington Commercial assured northern readers that the reports were unfortunately true.

There is, unfortunately, no mistake in this statement, unless falling short of a full detail of the calamity may be considered

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[2] Wahlenberg states that the longleaf pine is relatively immune to insect scourges, but that several such epidemics occurred destroying extensive stands in the early nineteenth century. One of these outbreaks, by an unidentified insect, occurred a few miles south of the Cape Fear River in North Carolina. Another which occurred near Georgetown, South Carolina, destroyed ninety per cent of the pines on a tract of 2,000 acres. Wahlenberg, Longleaf Pine, 165.

[3] Wilmington Chronicle, quoted in North Carolina Farmer, III (May, 1843), 271-272.

such. We have personal acquaintances who have lost trees in this way, and have undoubted statements of their dying in lots of five, ten, and as high as one hundred thousand.... This fatality among the trees has so far been felt more in Brunswick county than in any other quarter here.... No satisfactory knowledge of the cause has been obtained, nor any remedy found. 4

The following week, May 26, 1848, the editor of the Wilmington Journal added that he had learned from gentlemen from various sections of the country that "the...death of the Pine Tree is greatly on the increase...not only those trees that have been boxed...are dying, but those that have never been touched." Continuing the lament, he stated "The Pine forest is the gold mine of Eastern North Carolina, and: Should it fail, the ruin which would follow, to a large proportion of our people, would be incalculable." No remedy had yet been discovered, although the cause of the impending calamity had been ascertained to be "a diminutive insect; but how to put a stop to his ravages is the question asked in vain by every body."

From the central and older sections of the turpentine region came other reports of the destruction of the pines. In July 1848, the Newbernian stated that travellers along the road from Newbern to Kinston and Waynesborough reported "the turpentine pine is seen in great numbers either in a dying state, or already dead." With much concern over the prospects, the editor

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4 Wilmington Commercial, quoted in Wilmington Journal, May 19, 1848.

added:

As naval stores is an important staple in Eastern Carolina, and as its sudden loss or any considerable dimunition in quantity would be a serious misfortune, particularly at this time, and before the enterprise of our farmers could be directed more exclusively to agricultural pursuits, it is very obvious that if there be any remedy by which this decay in the trees can be checked, that it is worth a serious effort to discover and apply that remedy. [5]

While there was much discussion of the blight on the pines, there were few concrete suggestions for arresting its progress. In July a correspondent from Long Creek, New Hanover County, submitted to the Wilmington Journal a lengthy communication on the subject, pointing out the origin of the epidemic, its wide spread destruction, the value of the trees and importance of the naval stores industry, as well as the problems which would arise from the serious injury done to North Carolina economy. "This valuable tree," he said, "hitherto constituting the wealth and support of Eastern North Carolina,...is now being rendered entirely worthless. Various causes have been assigned, and remedies suggested, but none have as yet proved either satisfactory or effectual." [6]

By way of describing the origin of the epidemic, he stated that it was customary, in clearing forest land for cultivation, to girdle the large trees in May so that during the hot months

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[5] Newbernian, quoted in Tarboro Press, July 8, 1848.

[6] Wilmington Journal, July 21, 1848.

of July and August the bugs could destroy the trees before frost--cold weather always putting a stop to their operations. "But last winter, during the coldest weather, the bugs kept steadily at work.... and now their ravages really appear frightful... the more deaths among the trees, the more numerous become the insects that destroy them;...."

The loss already amounted to half the trees, and if the ravages continued until the middle of September, he predicted that less than ten thousand trees would be left in the county. Many turpentine producers, he said, had already removed half their hands for lack of trees. The bug, however, attacked unboxed and boxed trees, as well as other types of pines. Not more than one-fourth of a crop of turpentine would be made as a result of their depredations. It was not the loss of this one crop which concerned him most, but the effect the death of the pines would have on the entire economy of eastern North Carolina.

...if this death among our trees continues, what is to be done? Most persons are in debt for Turpentine land, and that, too, at a high price. You will know that Turpentine is the controlling commodity in this section, and regulates the price of everything else. Turpentine itself is very low--Turpentine land has already depreciated more than one-half, and everything else in proportion. As an evidence, look at the great depreciation in the value of property at the late administrator's sales in this county.... This is but a foretaste of what we must all soon realize. 7

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7 Ibid.

The correspondent also pointed to another problem which was certain to arise--tax assessment. A recent act of the legislature requiring the land to be re-evaluated for tax purposes declared that the valuation was to remain in force for eight years. When the assessment had been made the preceding year "our lands were valued very high; now a greater portion would not even bring the taxes."

The editor of the Journal agreed with the correspondent, that "The present aspect of affairs is indeed gloomy," and added that no remedy was in sight to prevent this terrible calamity. He also agreed that a reassessment of lands would certainly be necessary, if the disease were not checked, for the turpentine and timber regions would be very much oppressed under the old assessment.[8]

Various causes were assigned for this epidemic. A correspondent of the Mobile Herald, who said it had appeared in Baldwin County, Alabama, in the spring of 1848, attributed it to atmospheric conditions.[9] Another writer in the Tarboro Press, May 1849, suggested that the cause of the destruction was due to a bug which laid its eggs in the top of the pines. The bug was attracted to the pines by the smoke from burning rosin which "carries its lively perfume into the air and which smoke like

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[8] Ibid.

[9] Mobile Herald, quoted in North Carolina Farmer, IV (July, 1848), 43.

the morning fog for many miles settles on the pine, and the bug settles with it...and there commences the work of death." He reasoned to the effect that only for the past two years "has the State been stocked with turpentine stills in different directions ...and two years have we been plagued with the bug. I have heard some people vain enough to suppose the cause was from the Lord, but Deity had no hand in it; the individuals themselves are the cause."[10] To put an end to the ravages of the insect, he suggested that every distiller of spirits of turpentine stop burning the rosin during the warm seasons.

The following week an answer appeared to this letter, not in condemnation for the concern was too great, but only to point out the inconsistencies and to further the search for a remedy. It was an erroneous position, the author maintained, that either turpentine distilleries or the practice of burning rosin played any part in causing or aiding in the spread of the disease among the trees. This was evidenced by the fact that the disease existed as far as twenty miles from any distillery, and even farther from places where rosin had ever been burned. It was equally true that the death of the pines in any quantity had occurred only for the past few years, whereas distilling and rosin burning had existed for a much longer time in some places.[11]

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[10] Tarboro Press, May 5, 1849.

[11] Ibid., May 12, 1849.

The best explanation, however, came from Professor John D. White of Wake Forest College. When the pines surrounding that institution began to die in July, 1848, he made an investigation. Professor White found that the destruction was caused by two small bugs which entered the bark by boring a small round hole.[12] The paths lay invariably between the inner bark and alburnum, or wood of the previous year's growth. He kept five pairs of the bugs under observation for forty-five days, feeding them on pieces of pine wood. From the number raised from this group, he estimated that an ordinary tree might have as many as eight or ten thousand bugs, and that there might be, in the larvae state, twenty to thirty times that number.

As for a remedy for the evil they caused, he had no solution to offer. He thought the greatest depredations occurred during the months when there was the least flow of sap in the tree, for some trees made successful resistance by the flow of resin pushing the bug out of the hole. Birds, he noted, particularly the Woodpecker, consumed some of the bugs, but obviously in insufficient quantities to eliminate the evil.[13]

The ravages of the bug continued, and so great was the

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[12] He identified one of these bugs as "Cleopterous Tetrunas-Capitate"; the other remained unidentified. This and the theory given in an article on the subject in the Wilmington Journal of July 21, 1848, previously noted, are in substantial agreement.

[13] Raleigh North Carolina Standard, quoted in Tarboro Press, October 7, 1848.

damage that the legislature of North Carolina in 1849 passed a law providing for the reassessment of the lands in New Hanover, Brunswick, Bladen, Sampson and other afflicted counties. Only lands that had depreciated in value as a result of the epidemic on the turpentine trees were to be reassessed.[14]

In the spring of 1849 the eastern section of the state suffered a severe freak snow storm. The weather turned cold on April 14, and by next day a thick sleet was falling, changing to snow after five or six hours, which continued into the night. The storm cleared during the night and the snow melted the following day,[15] but not before great damage had been done. In his account of the storm, the editor of the Chronicle stated "We fear this storm wrought extensive, if not general destruction, in all this region, and as far as it extended, to the forming fruit and vegetables."[16]

The following week, when accounts of the damage wrought by the storm in other sections of the country came in, he added:

> The late snow storm was even more disastrous in its effects than what we supposed.... From various parts of this region... we have verbal accounts...that not only have vegetables and fruit, and fruit trees, been pretty generally destroyed, but that a large portion of the forest trees have shared the same

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[14] Wilmington Chronicle, February 7, 1849.

[15] The snow storm extended as far south as Alabama, and there was frost in Florida.

[16] Ibid., April 18, 1849.

fate. If this be so, it is indeed a most calamitous visitation. 17

The severity of the weather so late in the spring, however, served to check the ravages of the insect on the pines. On May 16, 1849, the editor of the Chronicle said:

Some weeks since, we mentioned that the insect which was so destructive last year to the pine trees in this, as well as other parts of the country, had re-commenced operations with the warm weather. We have recently, to our very great gratification, been informed, that the snow of the middle of last month had the effect, as is supposed, of checking the evil in a great degree, and, in conjunction with another cause, will, it is generally supposed, arrest it altogether. This other cause is the appearance of immense swarms, of a large fly, which attacks and kills the tree insect.--This may seem a strange statement, but it is, as we are assured by men of veracity, strictly true. 18

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17 Ibid., April 25, 1849.

18 Ibid., May 16, 1849.

CHAPTER XVI

THE TREK SOUTH, 1846-1861

The high prices offered for turpentine in 1845-46 stimulated considerable interest in its production in South Carolina and several of the other Southern states. In March, 1846, the Wilmington Chronicle carried a notice of the beginning of turpentine operations in South Carolina:

> Our neighbors in South Carolina are at last awaking to the value of their pine trees, and so far over coming their prejudice against tar and turpentine, as to condescend to become producerrs of them. This is an evidence of good sense which they will feel very sensibly in their pockets if they will but persevere in it.
>
> We see by the Cheraw Gazette, that a premium has been awarded by the Marlborough Agricultural Society to Dr. Wm. Crosland for 183 barrels of Turpentine, made by one hand, last year. The expense of barrels and getting it to market in New York, is estimated at $131 50, and at present price, $5 a barrel, it is expected to yield $915. Nett yield $783 50. A pretty good profit on the labor of one hand. 1

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1 Cheraw Gazette, quoted in Fayetteville Observer, quoted in Wilmington Chronicle, March 11, 1846. For evidence of slightly earlier efforts to produce turpentine in South Carolina, near Charleston, see letters, D. W. Jordan to Emily Jordan, April 9, 19, 1844, and Emily Jordan to D. W. Jordan, April 25, 1844. Jordan Collection, Duke University Library.

As further evidence of the sudden spread of the turpentine business, the Chronicle of July 1, 1846, quoting the Winyah Observer, published at Georgetown, South Carolina, stated:

> The town Council, we are happy to say, have repealed the Ordinance passed some years ago, prohibiting the landing of naval stores on the different wharves. The Ordinance prohibitory, should never have been passed. It was enacted when cotton was first brought to this market for export and it was supposed the two should not be associated. We understand that several gentlemen in the Pee Dee country are manufacturing turpentine, and we know of several on the Black River, and we know also that seats for distilleries in the town are being sought after, and what with the abundance of turpentine timber on the tributary streams, and the admirable location afforded by our peninsula, and the water lots at either end of the town, we look forward, with some hope, to the importance of the trade. We understand also that some 6000 barrels of tar have been exported up to the present time from this market and about 400 barrels of turpentine the present season. [2]

So great was the turpentine mania in the late eighteen forties and so little known about its production outside of North Carolina, and so many the inquiries of people further south concerning it, that several articles appeared in the newspapers and journals on the methods employed in the business. Eventually a pamphlet was published in Charleston, South Carolina, giving the information in detailed form, and in 1850 DeBow's Review published a long article by Edwin Herriot, a Charlestonian, on "The Manufacture of Turpentine in the South."[3]

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[2] "Georgetown tar" had been in market for some years, but the turpentine business was apparently just beginning.

[3] DeBow's Review, VIII (May, 1850), 450-456.

In May, 1847, a shipment of seventy barrels of Florida turpentine, said to be the first collected in East Florida since it became a part of the United States, reached the port of Jacksonville. This first shipment was from a turpentine plantation near Palatka, and was hailed by the editor of the local paper as "an index of the many resources which the Tropical State has within her borders."[4] In March of the following year there was a shipment of thirty barrels of tar from East Florida to the Savannah market. This was said to be the first shipment of its kind, but if it found a profitable sale was to be followed by others.[5]

Although the crash in the market caused some of the early beginners to become discouraged, after the market recovered in 1847 and 1848 the prices were still sufficient to tempt some into the business. Further evidence of the rise of the industry in South Carolina can be found in the market news and marine lists of the clearances and arrivals of vessels. For example, the Boston market news of April 15, 1847, recorded the arrival of 500 barrels of tar and turpentine from Little River, South Carolina.[6] By 1843 Charleston, South Carolina, had at least

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[4] Fayetteville North Carolinian, June 12, 1847. See also DeBow's Review, X (April, 1851), 411.

[5] Savannah Georgian, cited in Wilmington Journal, March 31, 1848.

[6] Wilmington Journal, April 23, 1847.

one turpentine distillery capable of working up one hundred barrels of crude turpentine per day; and plans were being made at that time to enlarge the establishment to double its capacity.[7]

When owners of pine lands in South Carolina and other Southern states decided to go into the turpentine business, it was not uncommon for them to hire an experienced North Carolina hand to manage the operation.[8] In May, 1849, the Wilmington Chronicle, quoting in part from the Savannah Republican stated that:

> Mr. Robert J. Nyslop, formerly of this State, has been for some time in South Carolina teaching the people how to crop and put up Turpentine. He publishes in the Savannah Republican some statements made by farmers in the district of Barnwell, (S. C.,) relative to their success in the business. One of them is from Thomas Beard, of Beaufort Bridge, who certified that with the labor of one hand from the 17th day of March to the 24th day of November, 1848, he got three hundred and nineteen barrels.[9]

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[7] J. W. Dawson and H. W. DeSaussure, Census of the City of Charleston for 1848 (Charleston, S. C., 1849), 172. See also DeBow's Review, VII (November, 1849), 398-399.

[8] For a detailed description of the beginning of turpentine production in South Carolina in the 1840's, see the article, previously referred to, by Edwin Herriot, "The Manufacture of Turpentine in the South," DeBow's Review, VIII (May, 1850), 450-456. A similar description of early production in Alabama is given in DeBow's Review, XVIII (February, 1855), and in the Alabama Planter, quoted in Tarboro Press, June 2, 1849.

[9] Savannah Republican, quoted in Wilmington Chronicle, May 9, 1849. Nyslop was apparently in Georgia at this time, trying to stimulate interest in the turpentine business. There is another reference to his turpentine and other activities (not altogether

A month later the Charleston Courier stated, in regard to the production of turpentine in South Carolina:

> This article promises to be a prominent one in our list of exports in a few years. It will be perceived by our ship news that eight hundred barrels have been received within a day or two by boats, made in Charleston district, and a gentleman attached to a factorage house in this city mentioned to us that he thought their sales alone would amount to about ten thousand barrels this year. 10

By 1850, it was estimated that there would be produced that season, in the states of South Carolina, Georgia, and Florida, from 40,000 to 50,000 barrels of turpentine, most of which would be manufactured on the spot and arrive at market in the shape of spirits of turpentine and white rosin.[11]

The production of turpentine in the southern states other than North Carolina before 1850, was not great, however. A few

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creditable) in Georgia and in the Wilmington Chronicle, January 15, 1851. At about this same time, 1849, it was estimated that Georgia's production for the year would amount to about 25,000 barrels, and Florida's to about 5,000 barrels. There was at least one distillery in Savannah and a few others in the state. Savannah Republican, quoted in DeBow, ed., The Industrial Resources of the Southern and Western States, III, 355.

[10] Charleston Courier, quoted in Wilmington Chronicle, June 13, 1849.

[11] See the review of the New York naval stores market in the Charleston Mercury, June 15, 1850. The Wilmington market news during the year 1850 also contained several notices of naval stores received from such places as Beaufort, and Hunting Island, South Carolina, usually Virgin turpentine from first or sometimes second year's boxes. Wilmington market news of July 3 and August 8, quoted in Tarboro Press, July 13, and August 17, 1850.

of the planters, owning pine lands contiguous to the more fertile part of their plantations diverted some of their labor force to its production, but the real trek of the naval stores industry into the region south did not begin until the eighteen fifties. When the North Carolina forests of longleaf pine began to show signs of exhaustion, and all the available tracts for large scale operation had been taken up, the larger North Carolina producers began to remove with their forces, intact, to more opportune regions.

From Brunswick County, which had been the seat of the early expansion of the industry below the Cape Fear, producers moved either up the Cape Fear to Bladen or Cumberland Counties, or to Columbus County on the line of the Wilmington and Manchester Railroad, and later began to push into the adjacent South Carolina counties. An item tucked away in one of the columns of the Wilmington Journal in January, 1853, illustrates the keen competition among the North Carolina producers for available pine lands in South Carolina. "A fat, jocular old gentleman, writing from Conwayboro, (S. C.,) to a young friend of ours in this place, says:--'There are so many men here hunting Turpentine Land, that we can't turn around without getting bruised, or our toes mashed;....'"[12]

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12 Wilmington Journal, January 28, 1853. The Wilmington papers also contained occasional advertisements of producers in South Carolina and Georgia offering to sell virgin tracts of timber, although more often tracts which had been boxed and cultivated

Olmsted, in his tour through the seaboard slave states in 1852, noted, as he passed into South Carolina on his way to Charleston, that "A few of the pines were boxed for turpentine; and I understood that one or two companies from North Carolina had been operating here for several years."[13]

Some of the producers, removing from North Carolina, settled in Georgia. In the fall of 1852 the Tarboro Southerner, quoting in part from the Savannah News, gave an account of a North Carolina producer who had removed to Georgia for the turpentine business.

> Richard Cogdell, Esq., formerly of North Carolina, where, it is said, the pines are greatly exhausted, and do not yield their usual quantity of turpentine, has entered into the business on the Altamaha river, ten miles above Darien, Georgia. Some five or six other persons from North Carolina have also purchased land in the same vicinity, and will commence operations during the coming Autumn. There will be force enough employed there to produce from 10,000 to 12,000 barrels the next year. At present rates this would sell at about $60,000. The Savannah News, referring to the enterprise of Mr. Cogdell says: The result of his experiment,...has convinced him that the pines of Georgia are equal to those of North Carolina in every particular. They will yield as much Turpentine per dip, and as the season is longer, they given an extra dip per year.... The Turpentine is

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only one or two years. On March 4, 1853 the Journal printed a marine list and prices current for Conwayboro, South Carolina, which was the head of deep water navigation on the Waccamaw River. Among the vessels clearing were two schooners bound for New York, one carrying 2200 barrels of naval stores and the other 900 barrels. One of the principal shippers was D. W. Jordan who had moved from Brunswick County to Little River, and subsequently to Conwayboro in the early fifties. Jordan Papers, Duke University Library.

[13] Olmsted, Journey in the Slave States, 397-398.

also quite equal in quality....and the Rosin brings as high a price in New York as any other article offered in the market.[14]

In 1853, the waning of the naval stores industry in the older regions around Washington was already evident. A farmer from Beaufort County writing to the Farmer's Journal to encourage the editor in his enterprise and to promote agriculture interest, stated that since 1848

...there has been a gradual improvement going on, mostly, however, in the upper part of our state.
Our means of transportation have greatly increased, but the resources that have been operated upon chiefly--namely: Naval Stores--are becoming very limited and used up, while those of agriculture and horticulture, the ones mostly to be relied on, have not yet been developed. [15]

As further evidence of the fact that the pines of North Carolina were becoming exhausted and that North Carolina producers were moving south, an editorial in the Farmer's Journal of February 1854, called attention to the value of the swamp lands in Beaufort County and other parts of the state, and urged those who wished to purchase lands to examine these before going out of the state. "We are of the opinion," said the editor, "that in less than ten years...a large body of these lands will

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[14] Savannah News, quoted in Tarboro Southerner, October 2, 1852. Compare a letter written by W. H. Turlington, one of the smaller operators among the commission merchants at Wilmington, to his brother, A. J. Turlington, December 11, 1853, in which he stated, "if I had money I would go to Georgia and make and distill Turpentine." A. J. Turlington Collection, Duke University Library.

[15] Farmer's Journal, II (August, 1853), 147.

be bought up and cultivated by the very men who are now sending their negroes to South Carolina, and Georgia, to make turpentine."[16]

While naval stores were produced in all the Southern states from North Carolina to Alabama, the greater production outside of North Carolina in the eighteen fifties centered in South Carolina and Alabama. The South Carolina industry was in large measure an adjunct of the North Carolina industry, since the greatest centers of production, outside of the coastal counties near Charleston, were in the counties along the North Carolina line. The pine forests of this area were opened up by the building of the Wilmington and Manchester Railroad in the fifties, and in many instances the turpentine was produced by North Carolinians and the products were chiefly marketed in Wilmington. This development gave Wilmington a longer lease on life. For the producers who could not find locations convenient to the railroad or in South Carolina, however, nothing was left for them but to migrate farther south.

By 1854, Alabama showed a very definite interest in the production of naval stores. In December of that year a convention was held in Mobile by the Alabama producers for the purpose of fostering the development of the industry. Two reports were adopted by this convention; the first provided detailed infor-

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[16] Farmer's Journal, II (February, 1854), 336-337.

mation concerning the methods of production and was designed for those who anticipated engaging in the turpentine business. The second report, made by a committee appointed to inquire into the establishment of a market at Mobile, stated that the turpentine industry was begun in 1846 by R. D. James of Clarke County, on a limited and experimental scale.[17] It had, however, more than doubled itself annually, and in the short time of eight years had advanced to the point of requiring the sum of two millions of dollars of capital invested in its production, and it now yielded one million and thirty thousand barrels of rosin, worth three quarters of a million dollars. More than a million acres of pine land, previously uncultivated and utterly worthless, yielding little or no revenue to the state, had been entered and were in partial cultivation in turpentine. The pine woods formerly inhabited by a population distinguished alone for their ignorance and poverty, living almost entirely by the rifle, was now supporting an "industrious...people, adding not only to their own comfort by their labor, but...contributing in no small degree to the strength and wealth of the State."

New Orleans had made overtures and offered facilities for transporting naval stores direct to New Orleans by means of through-boats, and the merchants of Mobile, stated the committee,

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17 For an account of the early activities of James in the turpentine business, written by himself, see an article in the Alabama Planter, quoted in Tarboro Press, June 2, 1849.

should bestir themselves to establish a home market in Mobile and to increase the facilities for transportation from that port. Much rosin was thrown away because of the high freight rates, and the committee appealed to the railroad and steamboat interests to lower rates sufficiently to foster this industry, for the yield on freight and handling was considerably more than on a similar production of cotton. Moreover, larger quantities of goods would be bought from the merchants of Mobile, because a hand actively engaged in the turpentine business would not be able to produce any of the necessaries of life. The committee ended their report by reviewing some of the uses of naval stores and the future prospects for the industry, which they considered bright.[18]

The reports adopted by this convention received wide circulation in the press of the country, and in 1855, there was considerable interest displayed by the lower South in the naval stores industry. This interest manifested itself in the form of frequent inquiries of editors concerning the best methods of producing turpentine, resulting in a series of articles which were copied by most of the agricultural journals of the day. Eventually a detailed treatment of the methods to be employed in getting turpentine was prepared in pamphlet form, and this, too, was copied into the journals and served in part to answer the

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[18] DeBow's Review, XVIII (February, 1855), 188-191.

inquiries.[19] In some cases when the editors were unable to obtain any statements from current producers, they resorted to articles written around 1846 during the early expansion of the naval stores industry. In most all instances, those writing to the editors and supplying information on the turpentine business, whether from South Carolina, Georgia, Florida or Alabama, either drew on their own knowledge of the methods of conducting the industry in North Carolina, or on the knowledge of others who were acquainted with the methods in vogue there. North Carolina was the standard by which the rest of the industry was judged.

Florida exhibited some interest in the naval stores industry during the latter part of the fifties, as shown by a number of articles in the press. In 1855, a notice appeared in the Wilmington Journal which gave an account of the production and export of naval stores from Apalachicola, Florida, for the preceding year.

During the past and present year quite an addition has been made to our Export Trade,--Rosin and Spirits Turpentine, and as the supply of these articles will greatly increase hence forward, we would invite dealers abroad to send their orders to this market for execution. Very little crude Turpentine has

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19 The pamphlet entitled "Turpentine. Hints for Those About to Engage in Its Manufacture," by an unknown author was first published in the Southern Cultivator and copied into several other agricultural journals, among them the Carolina Cultivator, I (November, 1855), 281-284. It was originally sent to the Southern Cultivator by John M. Potter of Decatur County, Georgia, but he apparently was not the author.

been received, thus far, as the quantity gathered has scarcely served to supply the distillers located along the river above and at this city. But as the planters have had their attention earnestly drawn to our virgin Pine Forest, there is no doubt that in a few years a large supply of Crude Turpentine will be offered for sale here. During the year ending September last, there has been exported from this port, principally to New York and New Orleans, 2,125 bbls. Spirits Turpentine, 9,034 bbls. Rosin, and 60 bbls. Tar.... The abundance of vessels will lower rates of freight this season, and offer better facilities for shipping these articles than have been presented for some years past. 20

In the latter part of the fifties there was a constant accession of North Carolina producers to the turpentine regions of the lower South, a large number of them settling in Alabama.[21]

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20 Wilmington Journal, January 19, 1855.

21 In 1858, James R. Grist sent his cousin, Benjamin Grist, to Alabama to open up a new turpentine plantation. Benjamin settled on Fish River in Mobile Bay and began large scale operations, employing approximately one hundred slaves. Production on this plantation for the year 1859-60 amounted to 26,337 barrels of crude turpentine, from which were distilled 3,020 barrels of spirits of turpentine and 15,118 barrels of rosin. Benjamin Grist to James R. Grist, March 16, 1860. Grist Collection, Letters, Duke University Library. The letters of this collection mention a number of other North Carolinians who settled in Alabama and engaged in turpentine production.

CHAPTER XVII

TURPENTINE VERSUS AGRICULTURE IN NORTH CAROLINA

Meanwhile, in North Carolina the passing of the naval stores industry was evident not only by the large areas of exhausted pines and by the removal of many of the large producers south, but also by the revived interest in agricultural pursuits, especially in the growth of cotton.

During the eighteen forties and eighteen fifties, there were various attempts to arouse among the people a greater interest in the pursuit of agriculture, and to imbue them with the spirit of agrarian improvement. Agricultural societies were formed in the counties and for the state as a whole, county and state fairs were held, and farm journals were begun, the latter to run for only a few years and fail, as the people were not farming conscious. The wealth afforded by their pine forests was greater than the profit to be had from the amount of cotton which could be produced on the poor land.

A letter written to the editor of the Farmer's Journal and published in August 1852, in pointing out these facts stated:

...it is upon the success of Agriculture that a nation's success depends,...wherever we see a proper attention paid to its de-

tails, we are sure to see every other trade and profession in a thriving way. Notwithstanding we see this to be the result of a proper attention to the farming interest, we will still see it sadly neglected in our State, and our people yet depending upon other resources than the cultivation of the soil for their support.[1]

Pointing to the agricultural revolution in Virginia, which had been wrought by the work of Edmund Ruffin, he continued:

With these examples before them, why do our farmers fold their arms, and say that we will yet sleep on, we are not yet tired of the constant emigration of our young men from their homes, we are not yet tired of having our State laughed at, and her citizens taunted with being called the "tar, pitch and turpentine" folks. [2]

It is perhaps not altogether accidental that not one of the agricultural journals that began in North Carolina during this period was able to sustain itself for more than a few years before admitting failure in arousing the population to any interest in agricultural improvement. Thus the North Carolina Farmer, begun in Raleigh in 1845 finally gave up the struggle in 1850; the Farmer's Journal begun in 1852, ceased in 1854. The Arator, which succeeded it, also lasted only until August, 1857; and the Carolina Cultivator, published contemporaneously by the former publisher of the Farmer likewise expired the same year, a few months after the Arator. During this decade, 1845-1855, the people of North Carolina were enjoying the turpentine

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[1] Farmer's Journal, I (August, 1852), 145.

[2] Ibid.

rage and had not time to farm, much less to seek in books and journals better farming methods. But with the waning of their turpentine resources in the late 1850's, there was a revived interest in farming. In 1857, the North Carolina Planter was begun at Raleigh. Drawing its strength from the reawakened interest in agriculture, the Planter continued until the Civil War intervened.

The revived interest in agriculture began first in Edgecombe County, from whence it spread to other regions of the state. So phenomenal was the change in the production and wealth of Edgecombe that her fame became wide spread, and the county was often referred to as "the State of Edgecombe." Such frequent mention was made of Edgecombe's rise and progress, that in 1853 the editor of the Farmer's Journal attempted to account therefor:

> If we mistake not, it was in this county that the cultivation of that great curse to our State, turpentine, was first introduced among us, and, as it held out such flattering inducements to the farmers...it is but reasonable to suppose, that every one who had land adapted to the cultivation of the stuff, went into it with his whole soul. And as it...proved with them as with those who have followed their example, to be only a temporary resource, they were first forced from its pernicious influence. When this resource failed, they then, through necessity, turned their attention to the cultivation of their farms and began to look around to discover the advantages which were in their midst, but hitherto unobserved. 3

In the Edgecombe-Washington, or rather the Tar River area,

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3 Farmer's Journal, I, No. 3 (June, 1853), 81-82.

cotton began to replace turpentine early in the eighteen fifties, and the volume of North Carolina cotton production increased annually in the late fifties. The Washington Despatch, in 1859, pointed out this increase in production and stated:

> Her capacity to produce cotton is nearly equal to that of any Southern State in two-thirds of her territory, and we think the day is not distant when she will take rank with any of her Southern sisters, in the production of this valuable staple commodity. Throughout the entire region hitherto devoted to the production of turpentine, cotton may be cultivated at great advantage. Even our sandy lands, aided by compost and other manures, produce it finely, and will give to planters a better remunerating crop than turpentine has ever done.
> ...we are satisfied that those lands supposed to be almost worthless after the turpentine is exhausted, can be made to yield cotton kindly and profitably. It will require patient labor and judicious manuring and culture to make them do well, but our observation forces us to the conclusion that it can be done successfully. Eastern Carolina must become a cotton, as well as a corn growing country,.... 4

In June, the Planter printed an address delivered by William A. Allen, to the Duplin Agricultural Society at Kenansville, November 6, 1858. Duplin, on the line of the Wilmington and Weldon Railroad, had been one of the foremost turpentine producing counties in the state. On this occasion, Allen spoke chiefly on the proper drainage of the soil and the necessity of enriching it through adequate fertilizing and manuring. Although Duplin County was larger than Edgecombe by fifty-five thousand acres, said Allen, the census of 1850 showed the cash valuation

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4 Washington Despatch, quoted in North Carolina Planter, II (March, 1859), 78.

of the farms in Edgecombe exceeded that of Duplin by $622,730. He attributed this disparity to the fact that "the people of Duplin have permitted turpentine...to occupy too much of their attention, and their farms too little. I am fully persuaded," he said, "that if there never had been a barrel of turpentine made in the county, the people would have been better off, and the county would to-day have been recognized...as perhaps the richest agricultural county in North Carolina...." What he said of Duplin he applied to most of the counties of that section, "at least to all of them where turpentine is regarded as a staple."[5]

The editor of the Wilmington Journal, who attended the Duplin County Fair and heard Allen speak, applauded his remarks:

> In the course of Mr. Alan's remarks, he referred to a matter which struck us as being especially pertinent to the occasion--that is, to the necessity...existing in the Cape Fear counties for the devotion of a larger degree of attention to the cultivation of the soil, and a less reliance upon mere products of the forest--naval stores and lumber--since agriculture is reliable, progressive, self-sustaining, while the other business which had at one time usurped its place is necessarily exhausting and inevitably tends to work itself out. [6]

As early as 1851, and at intervals thereafter, the editor of the Journal touched on this same subject, but without much

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[5] North Carolina Planter, II (June, 1859), 168-169.

[6] Wilmington Journal, November 12, 1858.

apparent success. The Raleigh Standard in 1851, noting Wilmington's recent progress, remarked that already controlling the lumber, timber and naval stores trade, if it would only build up a market for tobacco and cotton, the port could challenge competition from any quarter. The editor of the Journal seconded these remarks, gave some suggestions as to how Wilmington's influence in the tobacco and cotton growing region of the interior might be extended, and expressed the "hope to see the time when the products of the forest, instead of constituting the main stay of our trade, will only form one among many of equal or superior importance."[7]

In reviewing the exports from Wilmington for the second quarter of 1855, the editor remarked that they showed a decided decrease, especially in the receipts of crude turpentine, timber and lumber. Pressure in the money market had restricted trade to some extent, but the main cause had been the extended drought and low state of the streams which prevented produce from coming to market.[8] The editor cautioned, however, that:

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[7] Ibid., November 21, 1851.

[8] There also had been less demand for lumber, due to the decline in building at the North. The high price of bread stuffs, as well as a decline in naval stores, might have kept a number of hands from the eastern counties, usually hired to make naval stores for the Wilmington market, at home where they could find more profitable employment in raising corn. This he thought might have had some effect on the decreased quantity of naval stores received.

Wilmington, and indeed this whole section, must look beyond the forests and its products. Their permanent prosperity must be founded upon the more permanent interests of agriculture and manufacturing, and they will be. Before twenty years, or even less time, the products of the forest will cease to be the main exports of this place. 9

In 1859, when the production and exports of naval stores from Wilmington for the year showed "a decided increase,...being the largest in the history of the port and section," the editor of the Journal again called attention to the wisdom of diverting some attention from naval stores to agriculture.[10] The prices during the year had been fair, at least remunerative to the producer, said the editor, but "we fear that with the very greatly increased production, remunerative prices cannot be maintained unless the consumption be largely increased, which we see no reason to anticipate. It would be a wise policy to turn a portion of the labor now employed in the production of naval stores to the more direct pursuits of agriculture."[11]

Aware of the transitory nature of the naval stores industry, the editor frequently emphasized the importance of developing

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9 Ibid., April 6, 1855.

10 "The shipment of Spirits Turpentine exceeds that of any former year by over 10,000 casks, 6,000 of this increase being in foreign exports. The crude article of Turpentine, as also Rosin, Tar and Pitch, are largely in excess." Ibid., January 5, 1850.

11 Ibid.

the agricultural resources of the region to augment and eventually supplant the products of the forests, as the real basis of North Carolina economy.

> The agricultural capacity of most of the Eastern part of North Carolina has been much underrated. The turpentine and timber business has drawn off attention from the resources of the land.... It is a great mistake that when once the turpentine falls we must fall too. It may be the best thing for us when staple agriculture is substituted for a dependence upon the products of the forest. 12

By the late eighteen fifties the southern part of the state was following the example of the Tarboro-Washington-Newbern area in returning to agriculture. In October, 1859, the North Carolina Planter published a letter from an Onslow County farmer, who stated that an Agricultural Society had been organized and a fair was to be held at Jacksonville, the county seat.

> We trust it will create a spirit of improvement among our farmers, and unite the people, and that better crops may be made thereby, as the knowledge of one by this union will become the property of all.
> ...Onslow is not as great a farming county as Jones. We make Naval Stores extensively, thereby neglecting the more important of all the farming interest by omitting to properly fertilize and improve the soil. 13

From Brunswick County, the seat of the early expansion of the naval stores industry, also came evidence of a shift to

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12 Ibid., August 7, 1857.

13 Newbern Daily Delta, quoted in North Carolina Planter, II (October, 1859), 311.

agriculture. In November 1859, the Planter published a letter from a Brunswick farmer who stated his interest in enlarging the subscription list of the Planter, in furthering agricultural improvement,[14] and in making Brunswick an agricultural county. "This county heretofore has been almost exclusively engaged in getting timber, lumber and Naval stores for market," he said, "but now, all the choice timbered and lumber making growth within reach of market, is gone, turpentine trees worked up, and our citizens must either move off to a fresh country or turn their attention to agriculture. I hope they may choose the latter." The land was poor, he said, but there was abundant lime to be had from oyster shells, plenty of marl, and other substances with which the soil might be enriched.[15]

Some of the Brunswick turpentine producers did move off. At least, D. W. Jordan[16] and James E. Metts[17] moved into South Carolina, and in 1859 James R. Grist advertised for sale his six thousand acres of pine land in Brunswick County.[18] Some

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[14] At that time there were only fourteen subscribers to the Planter in the entire county.

[15] North Carolina Planter, II (November, 1859), 349.

[16] William A. Tutt to Mrs. Emily Jordan, February 22, 1847. Jordan Collection, Duke University Library.

[17] Wilmington Journal, November 16, 1855. James E. Metts to James R. Grist, December 5, 1858. Grist Collection, Letters, Duke University Library.

[18] Wilmington Journal, May 6, 1859.

stayed, however, notably D. L. Russell (a brother-in-law of James R. Grist), who, as his turpentine activities began to play out, turned more of his attention to agriculture.[19]

Especially in the older turpentine region to the north was the culture of cotton assuming importance. A Pitt County planter, writing to the Southern Argus in 1860, described the rapid strides Pitt was making towards "agricultural grandeur." "Cotton seems to be the mania here, and all the larger planters have been, and are yet devoting the most of their time and attention to its cultivation. The crop this year will be much larger than ever before planted."[20]

In the same year, the Washington Despatch stated that the results of the experiments with cotton culture in that area during the few preceding years were enough

> ...to settle it as a "fixed fact," that North Carolina henceforth may be set down as a cotton State. The soil and climate of a large portion of the State render the cotton crop the most productive, while added to these the system of composting, marling, limeing and the use of other fertilizers, contribute to make it less liable to the diseases and casualties which so seriously affect it in more Southern States. 21

So pronounced was the return to the culture of cotton in

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19 Wilmington Herald, quoted in the Arator, I (May, 1855), 43.

20 Southern Argus, quoted in North Carolina Planter, III (August, 1860), 263-264.

21 Washington Despatch, quoted in North Carolina Planter, III (October, 1860).

North Carolina, that in 1860 the Southern Cultivator, published at Athens, Georgia, wrote concerning the "Agricultural Progress of North Carolina":

> Thirty years ago, North Carolina abandoned the growth of Cotton, owing to causes not very clearly defined, but such as that the season was too short, the "spring too backward," soil too thin, &c., but returned to it with vastly increased energy, producing a greater yield in one county now, than in the whole State formerly. And it is making the Cotton-growing districts rich,.... There are already planters who make 1,000 bags, which, at $50 per bag, is $50,000; and, ten years ago, the same men did not produce a bale. 22

Despite the increasing volume of cotton production in North Carolina in the late fifties, and the growing interest in agriculture generally, especially in the older turpenting regions, North Carolina remained the largest naval stores producing state throughout the period. By the late eighteen fifties the industry had become centered in the Cape Fear region with Fayetteville as its headquarters. In 1857, when naval stores took a rather sudden advance in price, the editor of the Fayetteville North Carolinian commented:

> We learn that this staple acticle [sic] of produce has greatly advanced in price, sufficiently so to realize for some of our merchants a very handsome margin. We are very glad that any commodity of our own can be made a profitable export, and we hope that the article will continue to go higher, as some think it will. Tar, pitch and Turpentine aint [sic] to be sneered at as North Carolina products. They were once

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22 Southern Cultivator, XVIII, No. 11 (November, 1860), 350.

synonymous with poverty and barrenness. They will yet be a source of wealth and prosperity to the State. 23

In 1860 the total value of the naval stores produced in the South amounted to $7,450,921. Of this amount, $5,311,420 was produced in North Carolina. South Carolina came next with a total product valued at $1,076,725, followed by Alabama with $623,589, Georgia $236,111, Florida $100,676, Louisiana $95,750, and Mississippi $1,700.[24] These figures indicate that the industry was still predominantly a North Carolina industry, but that expansion and development in the lower South had begun.

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23 Fayetteville North Carolinian, January 17, 1857.

24 United States Bureau of the Census, Eighth Census of the United States, 1860, Manufactures, III, passim.

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Grist, Allen. Letters and Papers, 1784-1920. 2,972 items and 3 volumes. Until the eighteen thirties the papers relate to the operation of a general store and to trade with the West Indies. After 1835 the Grists turned to the production and sale of turpentine, operating plantations at Washington, Wilmington, and Mobile. This is the most important single collection, and it affords information on practically all phases of the naval stores industry.

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Jordan, Daniel W. Letters and Papers, 1828-1913. 4,250 items and 8 volumes. After going into bankruptcy as a cotton planter in Mississippi in 1837, Jordan returned to North Carolina and entered the turpentine business near Wilmington, later moving into South Carolina. Manuscripts provide information on production, shipping, inspection and marketing of naval stores.

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BIOGRAPHICAL SKETCH

Born at Chesterfield, South Carolina, August 30, 1916. Wake Forest College, 1933-1937, A. B. degree, 1937; Rutgers University, 1937-1939, M. A. degree, 1940. Graduate Assistant in History, Rutgers University, 1937-1939. Part-time Instructor in Social Sciences, Wake Forest College, 1939-1940, and part-time graduate student, Duke University, 1939-1940. Graduate student, Duke University, 1940-1942. Fellow in History, Duke University, 1941-1942. Served with Ground Forces, Army of the United States, June 15, 1942--October 10, 1945, including fourteen months in the European Theater of Operations. Graduate student, Duke University, spring and summer semesters, 1946, and 1946-1947. Fellow in History, Duke University, spring semester, 1946.

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